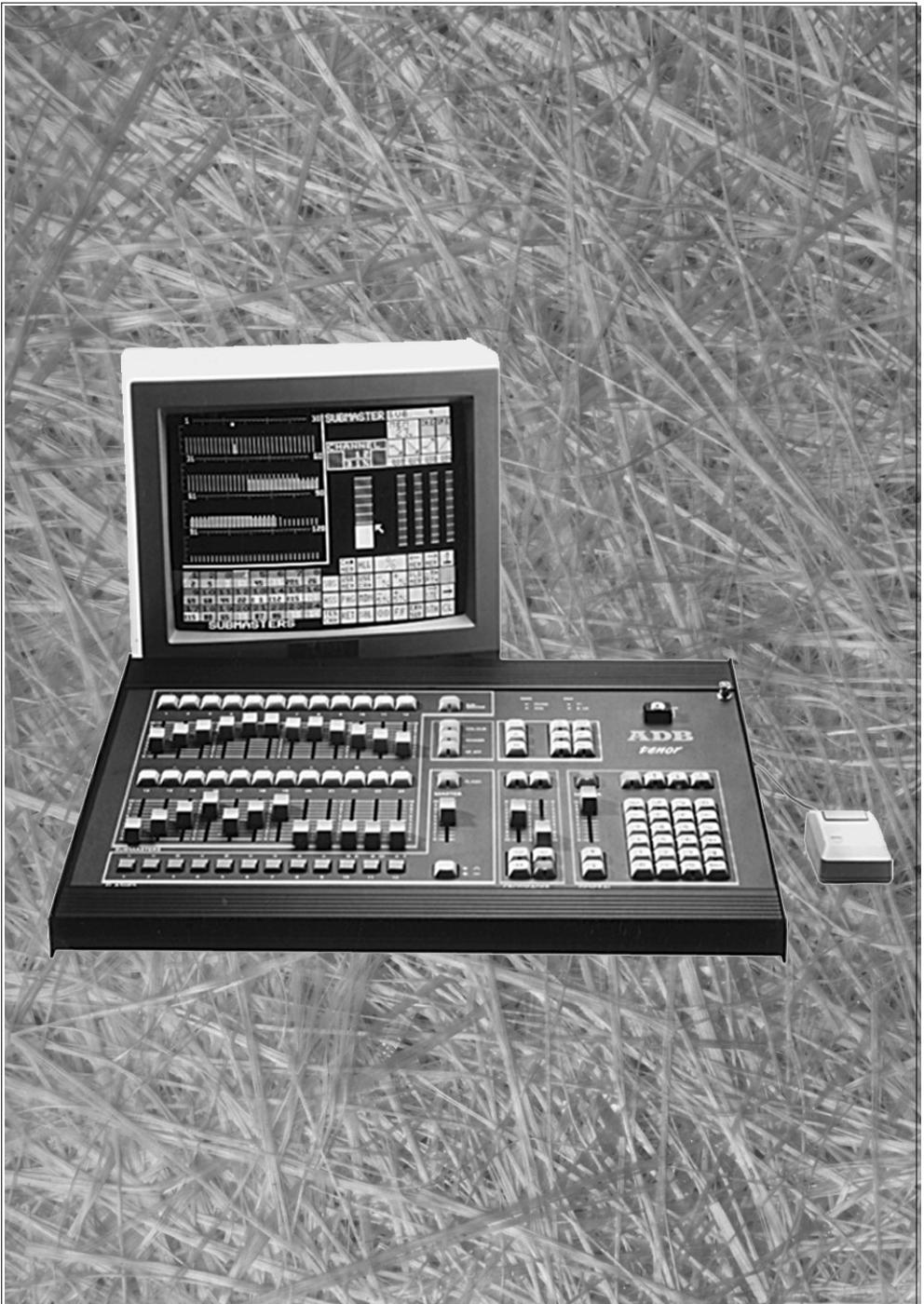


TENOR

Instruction Manual



1106.01.093

ADB
A Siemens Company

TENOR



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TENOR



Installation & Connection

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Receipt & Unpacking

As soon as you receive your equipment, open the boxes and inspect the items received.

If you discover any damage, contact the carrier immediately and make your claim accordingly for the problems discovered.

You can be sure that when the equipment left our factory it was in perfect condition.

Check that what has been supplied to you corresponds to the consignment note and that this corresponds to your order. You will find the references of your desk on an identification label affixed to the rear panel.

If this is not the case, contact your supplier immediately who will clarify the situation to your full satisfaction.

Permissible storage conditions:

Temperature : -10 to +50° C
: variation rate: 20°/hour

Relative humidity : 30 to 95 % without condensation.

TENOR

A higher tone in show lighting.

The TENOR combines riches of sophistication with the simplicity of a manual console.



2 TENOR software versions available:
- 120 channels
- 240 channels

These versions are available in 4 languages (french, english, german, dutch).

Ready to take up the most exacting challenges, ADB lighting systems knows all the tricks.

The functions of the TENOR are directly accessible via its keyboard and, thanks to the mouse, on the video monitor which centralises all the necessary information.

Operations are carried out in a simple and logical manner.

However sophisticated the show to be lit may be, the operator retains total control and an immediate response at all times, allowing him to improvise or make modifications during the show.

The well-informed user can not only take advantage of the performance range of the Tenor but can also model his desk in line with his personal working method according to his own design.

Performance Data

- 240 channels with a proportional patch up to 512 dimmers
- a minimum of 254 cue memories in which all the channels are used. Programming for attaching memories, loops, repeats. Direct access to the memories for the allocation or correction of channel intensities and delay times of stored effects.
- 24 manual or automatic timed submasters, each of which can receive either a cue or an effect. Preservation of the balance when channels in a submaster are adjusted.
- 12 flash controllers which restitute cues or effects.
- 2 registers with manual attenuators for sequential or non-sequential crossfade (or play back).
- 1 grand master with black-out.
- 99 24-colour scroller states which can be inserted into the cue list.
- 25 programmable chasers of 24 steps, the times of which can be modified when in operation. «Step by step» possibility.
- 20 pre-programmed special effects.
- recording of complete shows on memory card (credit card format)
- allocation of an individual curve (from 10) to each dimmer.
- possibility of storing the contents of a manual console through the DMX input.
- inhibition of a dimmer at any value.
- the «menu» function offers the possibility of integrating sequences of functions individual to each user by virtue of programmable keys (softkeys or macros).
- the indications given by the monitor are spread over 6 pages (crossfade, submaster, flash, effect, chaser, colour scrollers).
- a SOS program guides the operator at any moment in the operation sequence.

Desk Installation

Reliability

Selected, excess-rated top of the range components.

Checked at every stage of production.

State of demultiplexers and dimmers maintained in the event of disconnection or of the power supply being switched off.

A lithium battery with a service life of approximately 3 years makes it possible to safeguard the memories when the desk is idle.



- The TENOR is a professional lighting console with memory , it is a Class I equipment designed and manufactured to the EN60950 and requires imperatively a connection to the earth of the protective conductor.
- No special provisions are to be made for the installation of the equipment; however, the place where the equipment is to be installed must be clean, dust-free and have a temperature between 5 and 35° C and a relative humidity from 30 to 80 % without condensation.
Consumption of food and drink over the desk is not recommended because waste which may accidentally get into the equipment could impair certain functions.
- The desk and the monitor are to be installed on a table or a console.
- Like all equipment which includes microprocessors and uses similar technology, the TENOR is sensitive to the influences of static electricity and it is possible that these influences will affect functioning in certain circumstances.
In this case, it will be necessary to place anti-static carpets on the floor and perhaps to make the atmosphere more humid.
In all cases where a carpet is used on the floor, it must be an antistatic carpet.
- In order to avoid wasting time and damage to the equipment, the installer is to scrupulously follow the instructions in the above-mentioned diagrams and the locations of the cables to be connected which are marked on the rear of the TENOR.
- Before applying voltage to any element, it is to be checked that the existing voltages are within the limits defined in the TECHNICAL SPECIFICATIONS paragraph.
- Note that no interconnection may be made when the system is live, otherwise functioning is affected and can even be damaged under certain conditions.

Power supply

Alternating voltage of 220 or 240 V which may fluctuate at the maximum between 180 and 265 V, frequency 50 or 60 Hz.

Like all equipment used in computer systems, your TENOR is sensitive to the characteristics of the network and in particular to variations and voltage peaks. Consequently, it will sometimes be necessary to use an appropriate stabiliser. Please consult us if you are in any doubt about this.

The line is to be protected by fuse or by circuit breakers and is to be provided with a regulation earth connection for personal safety.

In a special version, the supply voltage can be 110 V which can fluctuate between 90 and 132 V.

Electrical connections

To prevent any risk of electric shock, do not open the desk, there is no user serviceable part inside.

Refer servicing to skilled and trained service personnel exclusively.

LETHAL VOLTAGE ARE PRESENT INSIDE.

Please disconnect all power carrying cables prior to open for inspection or service.

To enhance safety and operation reliability, this product has been fitted with galvanic isolation on input and output signals.

This insulation has been tested for 500 V DC voltage in order to prevent grounding loop problems or to transfer low voltages eventually present on some signals to controls or other signal connectors accessible to the user.

Connection to inappropriate sources may irreversibly damage the TENOR, it is user's responsibility to use the TENOR for its intended purpose and to check the equipment connected to it.

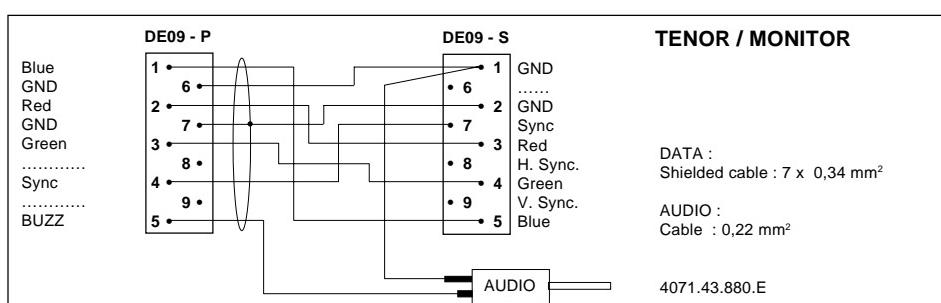
The TENOR is a professional equipment developed with the simplicity of use in mind. However, in view of fully benefitting of the designed in safety provisions, the equipment shall be installed and serviced by skilled and trained personal exclusively.

The connections are all made on the rear part of the console. A power supply for the console is provided (one feed) with a branch connection to its monitor.

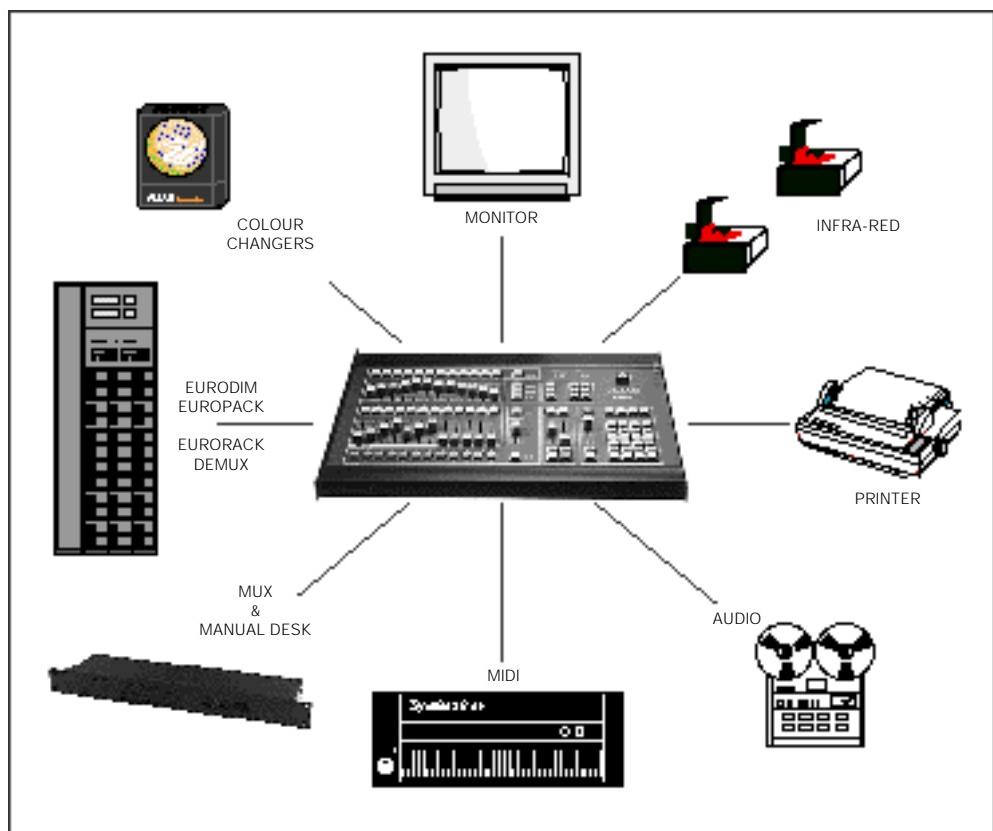
The basic unit includes two cables:

- 1 power supply cable for the console code ADB: 1145.12.210
- 1 DATA cable for the monitor (diagram below) code ADB: 1145.12.220

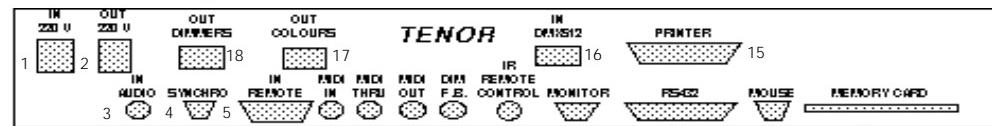
The mouse is fitted with its own connection cable and the monitor with its power supply cable.



Configuration



Connector Arrangement



- | | | |
|---|--|--|
| 1 220 V input
type: IEC 320-C14 | 8 MIDI OUT
type: 5P DIN-fem | 14 Input for reading
memory cards |
| 2 220 V output for
monitor supply
type: IEC 320-C14 | 9 Digital dimmer
feedback input
type: 5P DIN-fem | 15 Printer output
type: DB25-S |
| 3 AUDIO signal input
type: 5P DIN fem | 10 Infra-red
control signal input
type: 7P DIN-fem | 16 Input for DMX 512
signal from a MUX
manual console
interface
type: XLR-5 MX |
| 4 Synchro input
(RS485)
type: DE09-S | 11 Monitor output
type: DE09-S | 17 DMX512 output for
control of colour
scrollers
type: XLR5-FX |
| 5 Remote control input
type: DA15-S | 12 RS232 output (PC or
mouse)
type: DP25-S | 18 DMX512 output for
control of dimmers
type: XLR5-FX |
| 6 MIDI IN
type: 5P DIN-fem | 13 Mouse input (see also
12) type: DE09-S | |
| 7 MIDI THRU
type: 5P DIN-fem | | |

TENOR

Interconnection

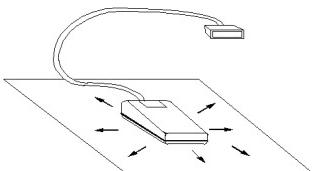
TENOR with EUROPACK EUROBLOC DEMUX 28/48/60 BOOSTER MUX 120 MULTIPRO POWER GELBUS	XLR5-MX	XLR5-FX	Cable Length : 250 m Max section : 3 * 0,34 mm ² shielded
TENOR with EURODIM DEMUX 240	XLR5-MX	DE09-P	Cable Length : 250 m Max section : 3 * 0,34 mm ² shielded
TENOR with AUDIO	DIN 5 P	LEFT CHANNEL GROUND RIGHT CHANNEL (or MONO SIGNAL)	Cable Length : 30 m Max section : 3 * 0,14 mm ² shielded
TENOR with EXTERNAL LINES	DA 15-P		Cable Length : 250 m section : x * 0,34 mm ²
TENOR with MIDI IN MIDI THRU MIDI OUT	DIN 5 P	DIN 5 P m	Cable Length : 15 m Max section : 5 * 0,34 mm ²
TENOR with I.R. RECEIVERS	DIN 7P m	DE 09-	Cable Length : 400 m Max section : 7 * 0,34 mm ² shielded

IMPORTANT NOTICE FOR POWER CABLES

Power cables and connectors are an important part of your equipment and contribute to its safety. Always use the connector to make or interrupt the link; never pull on the cable nor noister the cable or connectors. Do not damage the cable nor the connectors in any way, do not pinch nor tie together power supply and signal cables, check them at each installation and at regular intervals on permanent installation.



Mouse



- A horizontal area of approximately 30 x 30 cm is to be provided to the left or the right of the desk for the movement of the mouse.

The rubber ball situated under the mouse rolls perfectly on most surfaces but some surfaces are too smooth for it to adhere correctly.

In this case, simply lay a large sheet of paper under the mouse or purchase a mat designed for this purpose and available under reference 7630.40.020.

- Give your mouse a clean environment. Be carefull not to let it run over moist or greasy marks or dust, sand, erasing residues, crumbs or any other dirt which it might pick up. Debris like this can be drawn into the inside and clog the mechanism.
- To clean your mouse, see its instruction manual.

Connection:

Two existing models of mouses:

- old model (ATARI type - CN: 2870.01.330)
to be plugged in the "mouse" connector (see No. 13 on CONNECTORS ARRANGEMENT)
- new model (IBM PC type - CN: 2870.03.333)
to be plugged in the "RS 232" connector (see No. 12 on CONNECTORS ARRANGEMENT)

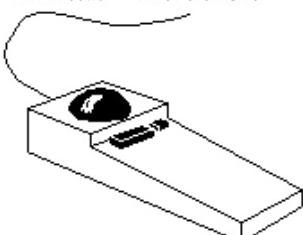
ATTENTION

To be aware of using new model of mouse with a TENOR previously delivered, you may have to make some modifications into the desk:

- check that link 153 KHz is cut (U74 pin 9 - U75 pin 54)
- check that pin 54 of U75 is linked to pin 33 of U75
- check that TENOR software version is at least 3.4.

For whatever question you have, please consult our after sales service.

- Box ref. : LX 200-192 DI
- ADB code : 2870.01.340



- Dimensions : 70 x 90 x 240

- Weight : 300 gr

Trackball

You can use a trackball instead of your mouse, directly and without any modification (at least if the trackball has been delivered by ADB).

The trackball is a fixed work station, with which you can move the cursor without taking your eyes from the screen, only the fingers and not the entire forearm doing the work.

IMPORTANT

Switch off the power supply of the desk before connecting your trackball otherwise the latter may be damaged.

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TENOR

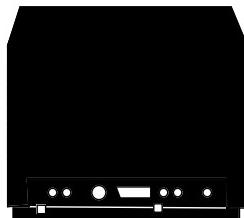
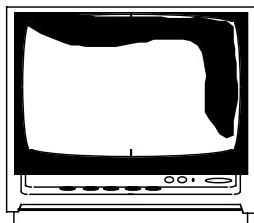
Monitor

In order to avoid excessive heating, make sure that the ventilation openings of the monitor are well exposed.

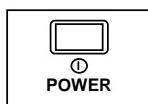
The monitor must not be placed close to a heat source nor on a soft object which would have the effect of blocking the ventilation slots situated underneath.

General

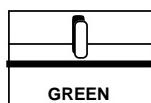
- If the image is not how you want it, make sure that the knobs and switches are in the correct position
- The rear panel is only to be removed by a qualified engineer.
- If necessary, clean with a damp sponge. Do not use alcohol, spirit or ammonia.



Adjust volume with this knob.



Switch on:
press button
Switch off:
press button again



For text processing,
you can press this
knob to have green
letters.



Adjust the image
position vertically
with this knob.



Adjust the saturation
of colour with this
knob.



Adjust the image
height with this knob.



Adjust contrast with
this knob.



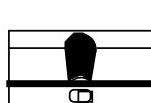
Adjust the image
width with this knob.



Adjust brightness
with this knob.



This knob must be in
RGB position.



Adjust the image
position horizontally
with this knob.



This knob must be in
analogue position
(pressed).

TECHNICAL SPECIFICATIONS

Image tube: 14 inch, dark glass,
90° deflection, distance
pixels slotted triplet
pitch 0,42 mm,
29,1mm neck diameter

Line frequency: 15625 Hz

Frame frequency: 50 Hz (47 - 62,5 Hz)

Mains voltage: 220 - 240 V AC

Consumption: 75 W (typical)

Resolution: 640 x 200 pixels
(on RGB input)

Audio output: 1 W, 5 % distortion

Character: 2000 (80 x 25 rows),
on RGB input

Dimension: 326 x 352 x 376 mm
(HxWxD)

Weight: 11 kg

Accessories

Protection cover

The desk is supplied with a protection cover.
This cover is also available under ADB reference 3205.07.155.

Lynkers mouse mat

The desk is supplied with a lynkers mouse mat.
This accessory is also available under ADB reference 7630.40.020.

Work light option

You can equip your TENOR with a work light.
This accessory is available under ADB reference 1145.15.001.

System Initialization



To reset the whole unit to the initial state simultaneously press the ALL and RET keys on the numeric keyboard and turn off then turn on your desk, while keeping both keys pressed.

After this operation your TENOR has:

- its memories completely empty
- its submasters, crossfades and flash submasters completely empty
- set the ON/OFF switch to OFF (LED is off and you find the message OFF on the screen)
- selected submaster 1
- selected the crossfade in automatic sequence

During subsequent use, after each voltage cutoff and return, the situation automatically returns to its position at the instant of the cutoff, except for some particular operations (MENU for example).

TENOR



Submaster Mode & SMM

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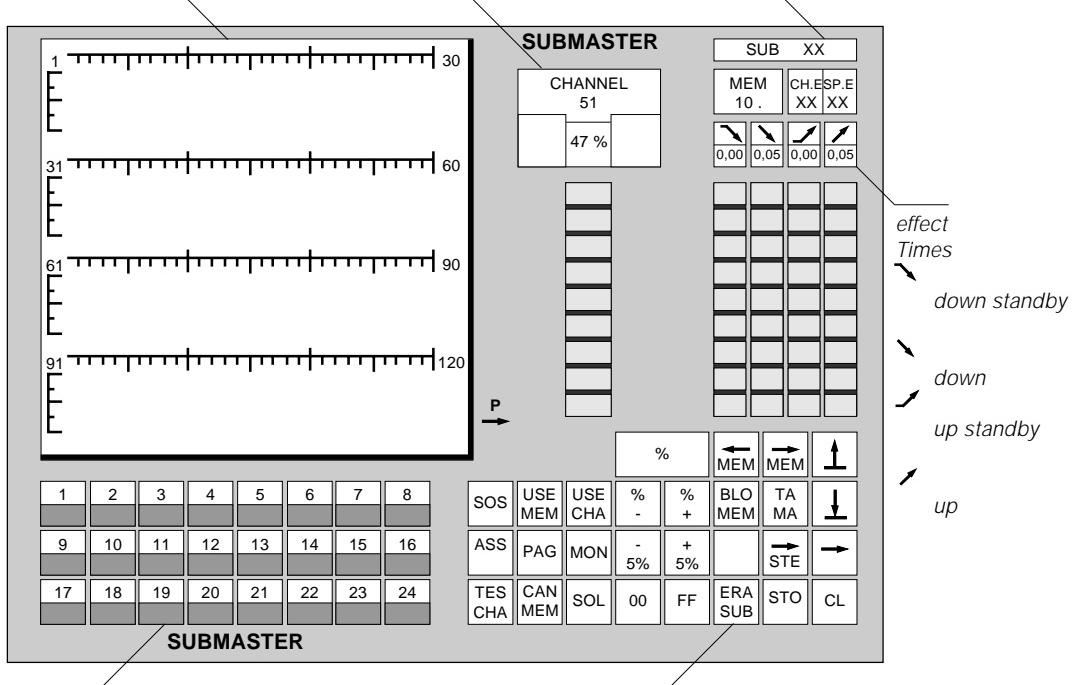
SCREEN PRESENTATION

Indicator of channels in the selected submaster.

The channels are shown per page of 120, a "P" sign indicates other channels in a following

(memory, chaser or effect)
No. of selected channel, its intensity and intensity

bargraph
No. of selected submaster
No. of selected memory
No. of selected chaser or special



page.
Submaster contents

Function symbols

Definition of Symbols

	Operator help		Intensity at 0 %
	Output sum control		Intensity at 100 %
	Test of selected channels		Call previous memory
	Cancellation of memory		Call next memory
	Display of the used memories		Memory block
	Change page of the channel indicator display		Erase selected submaster
	Display of the used channels		Record the contents of a manual console
	Display (monitor)		Next step
	Isolation of channels		Stop an effect or a chaser
	Intensity percentage		Loading a memory
	Add a % to the existing values		Recording a memory
	Subtract a % to the existing values		Link from one to another memory
	Add 5 % to the existing values		Cancellation of an operation
	Subtract 5 % of the existing values		Progressively increasing the Intensity
			Progressively decreasing the Intensity

Note on the use of symbols in this operating manual

- represents a symbol on the video screen
- represents a key on which a symbol is printed

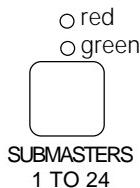


subNo.

represents a key for which the symbol is printed on the front label (right or beneath the key)
or
represents a number to be entered with the numeric keyboard

Mode Selection

To enter in submaster mode, press the key of the desired submaster, its red LED begins to flash and the number appears in the right upper corner of the screen.



You can also select a series of submasters, such as:

- from submaster 1 to submaster 6
- from submaster 1 to 6 + submaster 9
- from submaster 1 to 6 - submaster 4

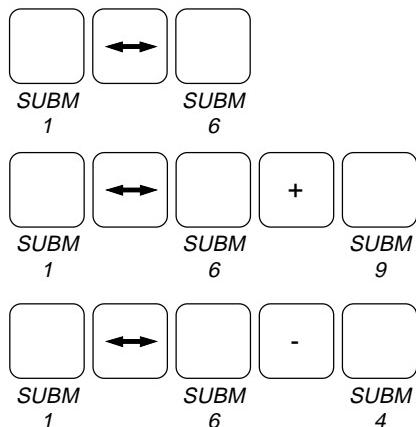


Table of the meaning of the luminous displays (led's)

red regular flashing	selected submaster
red irregular flashing	selected submaster in automatic mode
red off	non-selected submaster
red lighting	non-selected submaster in automatic mode
green off	empty submaster
green lighting	loaded submaster
green flashing	submaster with an active chaser, effect or fade

We can find the following situations:

selected submaster	empty	loaded					indicators	
		with lighting cue memory or channels			with effect		C= : regular flashing C<>: irregular flashing	
		manual	auto	fade running	stop	running	red	green
NO	X	X	X	X	X	X	OFF OFF ON ON OFF OFF	OFF ON ON C= ON C=
YES	X	X	X	X	X	X	C= C= C<> C<> C= C=	OFF ON ON C= ON C=

Selection of Channels

Selection of one channel

Example : channel number 37

On the numeric keyboard, press the key or keys corresponding to the desired channel number.

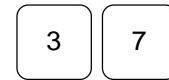
OR

With the mouse, take the cursor along the selection line.

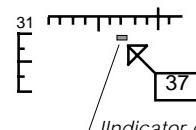
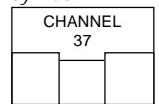
The circuit numbers will scroll in the symbol.

Click once the number of the desired channel appears.

A channel selected indicator lights up.



*The No. of the
selected
channel
appears in
the
symbol*



Indicator of channel selection

Selection of a consecutive series of channels

Example : from channel 33 to channel 37.

On the numeric keyboard, press the key or keys corresponding to the first desired channel number, press the <--> key and press the key or keys corresponding to the last desired channel No.

OR

With the mouse, take the cursor along the selection line.

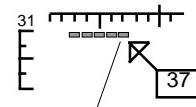
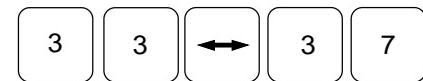
The circuit numbers will scroll in the symbol.

Click once the number of the first desired channel appears.

A channel selected indicator lights up.

Keep the mouse key depressed and move the cursor along the selection line. Release the key when the number of the last channel desired appears.

The indicators are lit.



Indicator of channel selection

Selection of a consecutive series of channels with or without another consecutive series

Example : from channel 31 to channel 50 except channels 42 to 45 but with channels 56 to 60

On the numeric keyboard press the key or keys corresponding to the first desired channel No. , press the <--> key and press the key corresponding to the last desired channel No.

Then press the + or - key and repeat the selection operations for the series of consecutive channels which you wish to select or deselect.

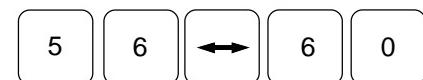
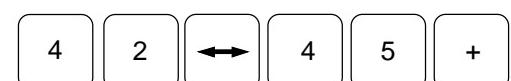
OR

With the mouse, take the cursor along the selection line.

The channel numbers will scroll in the symbol.

Click once the No. of the first desired channel appears.

An indicator of selected channel lights up. Keep the mouse key depressed and move the cursor along the selection line. Release the key when the No. of the last desired channel appears. The indicators are lit.



Repeat the operation to select another group of channels.

If you want to deselect channels, you simply have to operate in the same way on the selected channels, in that case the indicators go out.

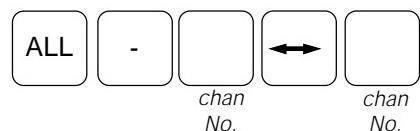
Selection of all the channels of a selected submaster

By pressing the ALL key or clicking the ALL symbol you can select in a single operation all the channels in this submaster with non zero intensity.



Selection of all the channels of a selected submaster except some of them

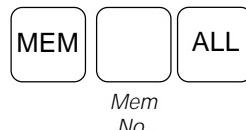
You can also deselect some channels of this submaster.



Selection of all the channels of a memory

Similarly you can select all the non zero channels of a memory.

To do this, press in order the MEM key, the key or keys corresponding to the desired memory No. and finally press the ALL key.



Selection of all the channels of all memories

To select the channels of all memories, press the "ALL" key five times.



Selection of all the channels of a submaster with exception of the already selected channels

Having selected a submaster, you can similarly select channels in this submaster with zero intensity.

To do this, press in order the keys - then ALL.

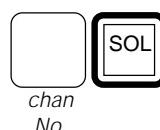
Ex: channels from 1 to 20 with a FF intensity and selected channels from 1 to 10.



"-" then "ALL" will select channels 11 to 20 and deselect channels 1 to 10.

Isolating channels

Proceed as below if you want to isolate one or more channels in a submaster, so as to alter their adjustment.



Having selected the submaster, press on the numeric keyboard the key or keys corresponding to the desired channels, then click the SOL symbol. At this moment, you can assign to them or alter their intensities.

Returning the isolated channels

This operation is carried out simply by once again clicking the SOL symbol.

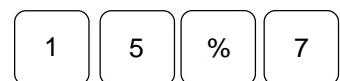


Allocation of Intensities

To allocate an intensity to the channels which you have selected, you can proceed in various ways as shown below.

by tens %

On the numeric keyboard, press the % key and press the tens of % figure. (example: channel 15 at 70 %).



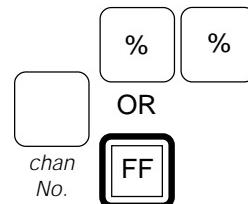
by units of %

On the numeric keyboard, press the % key, enter the tens figure, press the "•" (point) and enter the units figure.
(example: channel 15 at 75 %).



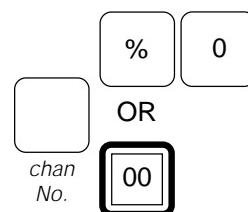
a channel at 100 %

On the numeric keyboard, press the % key twice or click simply the FF symbol.



a channel at 0 %

On the numeric keyboard, press the % key and then the 0 key or click simply the 00 symbol.



Modifying the Intensity of the selected Channels

To modify an intensity allocated to the selected channels, you can proceed in various ways as shown below.

progressively

- A Press one or other key "up - down". This operation increases or decreases the intensity value by step of about 1 % if you press by pulse action.
If you keep the key pressed, the upward or downward progression will be continuous.



NOTE

This function keeps the balance between the channels.

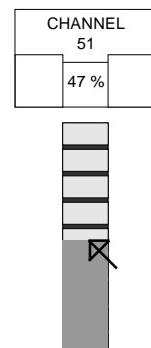
Ex Chan 1 at 50%, chan 2 at 70%, chan 3 at FF

Select channels 1 to 3 and increase the intensity of chan 1 (thus chan 2 too) by means of the button "UP", then if you decrease the intensity, you can notice that the balance between the intensity of the channels remains. The opposite operation works the same way ((decrease the intensity of chan 3 to 0% after that chan 1 to 3 have been selected.



OR

- B With the mouse, place the cursor on the intensity scale.
Click and keep the key depressed, the cursor hooks onto the value of the latest allocated intensity, then move the cursor to the desired intensity.
Its value appears in the upper symbol.
Release the key at the desired value.



NOTE

On the contrary with paragraph A, this function does not keep the balance between the channels. If you do the same as described in A, the 3 channels will have a FF intensity.

When chan 1 to 3 are selected, chan 2 is only hooked when the intensity of chan 1 reaches the same value (70%). Chan 3 will be hooked when chan 1 & 2 are at FF.

Note also : chan 1 at 50%, chan 2 at 90% and chan 3 at 70%, if you deselect channels 1 to 3, the intensity scale will display 70% (the value of the last selected channel (N° 3)). If you decrease the intensities by means of the mouse, you will notice that channel 3 hooks channel 1 at 50% and that the intensities of these 2 channels will decrease together without changing the intensity of channel 2. This because you first have to hook channel 2 at 90% before to be able to decrease its intensity.

Adding or subtracting 5% to the existing values

Click on one or other of the symbols if you want to increment or decrement the intensity by 5 % by pulse action.

Example : if the allocated intensity is 70 % by clicking on the "-5%" symbol you will obtain an intensity of 65 %.



OR

Adding or subtracting a same % to the existing values

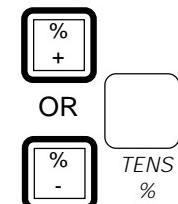
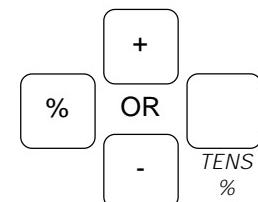
Press in order the "%" and "+" or "-" key, then press the key corresponding to the tens of % desired.

The intensity will be modified by X tens of % of its value.

OR

You will get the same result by first clicking on these symbols and then choosing the tens of % figure on the numeric keyboard.

Example : if the allocated intensity is 70 %, by pressing the % key, the + key and the 2 key, you will obtain an intensity of 84 %.



Returning to the initial values of the selected channels

By pressing the key or clicking the symbol, you will return the intensity to the value which it had before modification.



Remarks about Sumaster Display

Generic number:

- This number is displayed in black.
- When one or more submasters are selected, this number is displayed in pink.
- If the position of a submaster potentiometer differs from its actual value, this number flashes (for instance when the value of the potentiometer is given with the "%" key).

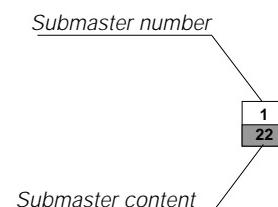
Submaster content:

- The lower part of this symbol displays the submaster content
- If no number is displayed, this submaster is empty or not yet loaded by a memory
- If the submaster has been recorded into a memory or been loaded by a memory, this number is displayed in black. If after that the contents of the memory and of the submaster differ, this number appears in pink.
- If an effect or a chaser has been loaded, the letters "E" or "C" followed by the number of the effect or chaser are displayed in black.
- If the submaster contains channels which are not coming from a memory, a pink "#" symbol appears on the screen.
- If the submaster is in "correction sum", this symbol appears in yellow.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24

SUBMASTER

submaster display



TENOR

Allocating Fade Times in selected Submasters

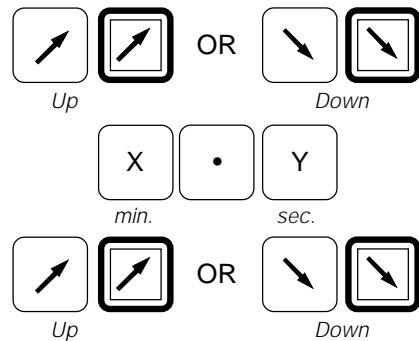
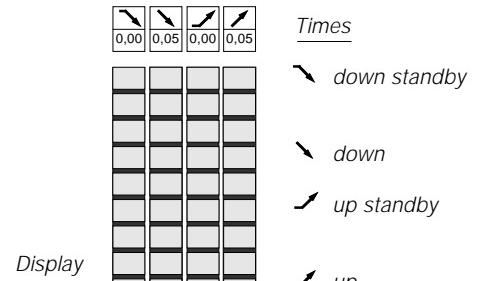
different up and down times

By default, the following times are allocated : up 5 sec.
down 5 sec.

Example : allocate an up time (or down time) of X min. Y sec.

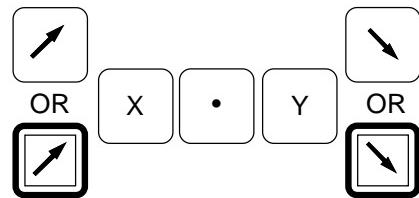
- press or click one or other of the keys or symbols depending on whether you want to give an up or a down time.
- press the key or keys corresponding to the number of minutes, then press the “.” (point) key and press the key corresponding to the number of seconds.
- press the key or click the symbol again to confirm the operation.

Maximum programmable time 59 minutes & 59 seconds



allocate an equal up and down time

- Press the key or click the symbol for going up, then allocate the time in minutes and/or seconds as described above and finally press the key or click the symbol for going down.

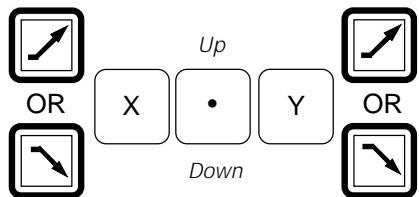


different up and down standby times

By default the following times are allocated: 0 sec. up standby
0 sec. down standby

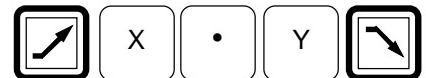
Example : to allocate a standby up time (or down time) of X min. Y sec.

- Click the symbol for the up or down standby, allocate the time in minutes and/or seconds as described above and finally click the symbol to confirm the operation.



Equal up and down standby time

- Click the symbol for the up standby, then allocate the time in minutes and/or seconds as described above and finally press the key or click the down symbol.



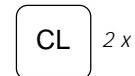
Attention

The standby times are ignored in the submasters during a fade.

Progressively modifying the fade rates in a submaster or a crossfade with P or S selected

After having carried out the time allocation operation, and on condition that no channel is selected, it is possible to globally modify the times.

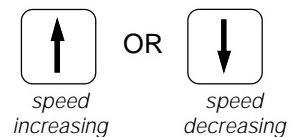
To be sure that no channel is selected, press twice CL on the keyboard.



On the numeric keyboard press one or other key depending on whether you wish to increase or decrease the fade rates.

This operation acts in multiplicative manner on the four allocated times. Its effect is in steps of about 10 % and times change on each depression of the key.

Pressing the up key increases the rate, hence decreasing the time and vice versa.



REMARKS :

«0» times

- if an up time or a down time is 0, by pressing the "decrease" key this time goes up to 1 sec.
- if a standby time is 0, these keys have no effect on this time.

Dimming a Submaster

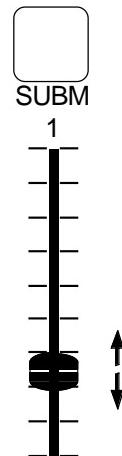
Dimming a submaster may be carried out whilst a crossfade is in progress, during memory loading, or during loading in the flash lines.

The intensities of output through the submaster are always governed by the position of the ON/OFF button and by the lever of the general potentiometer on the desk.

manual dimming

On the desk, operate the potentiometer corresponding to the selected submaster. The channels contained in this submaster follow proportionally.

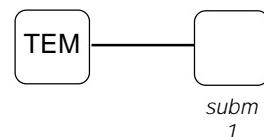
On the screen, in the channel indicator zone, the red bargraphs change in accordance with the adjustment of the potentiometer.



switching a submaster between manual and automatic modes

Each time "TEM" and "SUB" keys are pressed simultaneously, the submaster is switching from one mode to the other.

- if the red LED lit up, the submaster is in automatic mode
- if the red LED is off or blinking, the submaster is in manual mode



automatic dimming

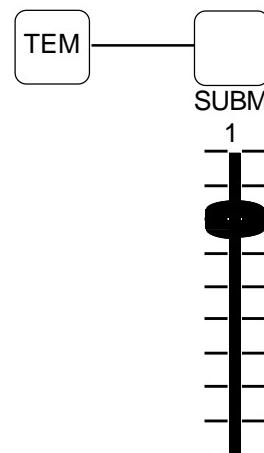
Set the submaster in automatic mode.

Move the potentiometer up to the desired value.

The content of the submaster will be dimmed according to the respective up and down times which have been allocated.

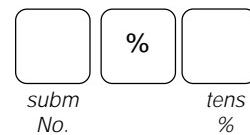
The dimming will be carried out according to the % value determined by the potentiometer of the selected submaster.

On the screen, in the channel indicator zone, the green bargraphs which indicate the preparations remain unchanged and the red bargraphs change in accordance with the times, up to the adjustment value of the potentiometer.



abrupt dimming with the % key

On the desk, press the key of the desired submaster, press the % key and enter the figure for the tens of intensity percentage.



Example:

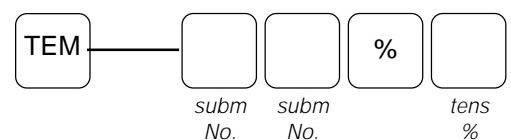
"%5": the result is the same as if you had moved the potentiometer abruptly to 50 %.

progressive dimming with the % key

On the desk, set the submaster in automatic mode, then press the key of the submaster, press the % key and enter the figure for the tens of intensity percentage.

The contents of the submaster rises at the rate corresponding to the up or down time stored in the submaster.

Remark: when dimming with the "%" key, the number of the submaster flashes on the screen because the physical position of the potentiometer is different from its real position.



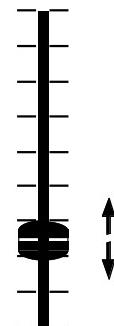
Dimming globalLy

Progressive dimming of all the cues.

On the desk, operate the grand master.

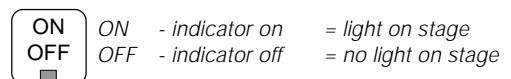
The channels contained in the submasters which potentiometer is not at zero, follow proportionally.

On the screen, in the channel indicator zone, the green bargraphs which indicate the preset remain unchanged and the red bargraphs change in accordance with the adjustment of the potentiometer.



Blacking Out

To effect rapid lighting or darkening, active the ON/OFF button on the desk; the indicator of this button is lit when there is light on stage.



Recording a selected Submaster into a Memory

There are 254 available memory locations in each of which you can record any of the channels at any intensity and the four fade time values differ for each memory. The memory numbers may be chosen between 0,1 and 999,9. The recording may be carried out in any order but the sequential restore sequence is performed following the ascending order of the numbers except when the sequential sequence has been deliberately modified as shown below.

recording in a non-existing memory

After having selected the submaster whose contents you wish to record, press the MEM key to select the memory, press the key or keys corresponding to the desired memory number and confirm the operating by pressing the "RECORDING" key.

You may also select a memory by means of a mixed mouse/desk/mouse operation.

recording in an existing memory

If you wish to record the submaster contents in an already created memory, proceed as above. In this case, if the memory is not empty the "memory occupied" message flashes in red and a sound signal beeps out; then confirm the operation by pressing the key or symbol a second time after which the content of the memory is replaced and the message disappears.

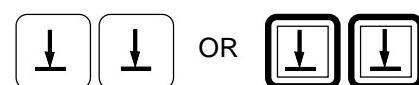
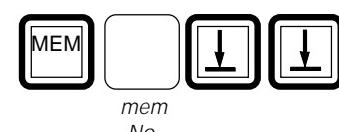
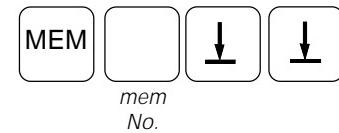
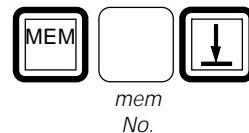
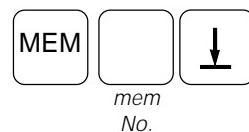
You may also use a mixed mouse/desk/mouse operation.

recording in the following memory

If you wish to record the submaster contents in the following memory, assuming that there is one, call it up by clicking the "--> MEM" key and you record by means of the symbol or key. In this case, if this memory is not empty, the "memory occupied" message flashes in red and a sound signal beeps out; then confirm the operation by pressing the "RECORDING" key or symbol a second time after which the content of the memory is replaced and the message disappears.

recording in the memory already loaded in this submaster

If you wish to record the content of the selected submaster in the already loaded memory, you only need to activate the symbol or key twice.



Modifying the sequential Order of the Memories

This operation is only possible in the submasters or the crossfade playbacks.

from memory x to memory y

The new sequence will place the memory Y after the memory X selected at this time (i.e. which is displayed and not necessarily the memory loaded on stage).

In sequence, the TENOR will pass from the memory X to the memory Y, "forgetting" the intermediate memories unless you have effected another sequence modification.

Press the key or click the MEM symbol, enter the No. of the first memory, click the "-->" symbol, enter the No. of the memory to be linked and again click the "-->" symbol.

Examples of modification of the sequential order

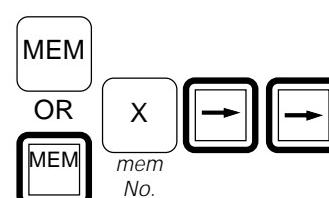
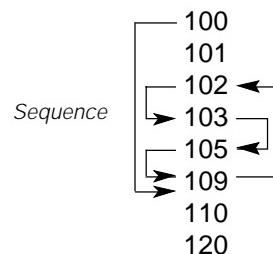
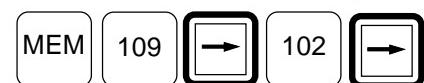
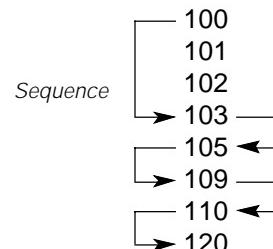
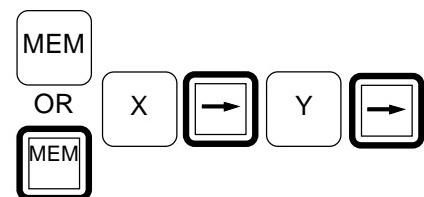
- To pass from the memory 100 to the memory 103 (in a memory sequence as shown opposite). To obtain this result, insert the commands:

- To pass from the memory 100 to the memory 109 then returning to the memory 102, insert the commands:

Following the modified sequential order, you enter a loop which you can not leave.

After the memory 109, you return to the memory 102 so as to go back to the memory 109 and so on. To exit from it you program a key which calls up a memory outside the loop in order to return to the normal sequence after loading of this memory. See chapter 8, example No. 13 for the programmation of the keys or the command memories.

Note that a link can lead to a cue memory, a colour memory or even to a command memory



cancelling a link

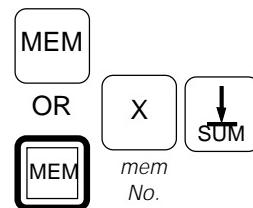
Press the MEM key or click the symbol, enter the memory No. after which you wish to cancell the modification of the sequence order and click twice on the "-->" symbol.

Recording the global Output

The selected memory will contain all the outputs from the TENOR, including the outputs from the submasters, the flashes, etc. at this moment. If a manual console or other desk is also operating in parallel, its output values at this moment will also be contained in the selected memory.

Press the key or click the MEM symbol, enter the No. of the memory and click the "SUM RECORDING" symbol.

If the selected memory is already occupied, click the symbol again to confirm the replacement of the contents or select another memory.

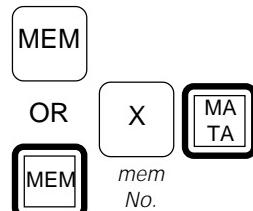


Recording the State of the manual Console or other Desk

The selected memory will contain all the outputs coming from the manual console at this moment disregarding the output values from the TENOR.

Press the key or click the MEM symbol, enter the No. of the memory and click the "MA TA" symbol.

If the selected memory is already occupied, click the symbol again to confirm the replacement of the contents or select another memory.



NoteThe DMX Input for connecting the manual console is USITT DMX512/1990 compatible.

In some very specific cases, there can be some problems with the "old" DMX512 standard (Mark after break 4µs - break 90, 94, 150 or 270µs).

Cancelling a Memory

Select the memory that you wish to cancel and click the "CAN MEM" symbol twice.



2X

Cancelling all the Memories

Select any memory and click the "CAN MEM" symbol five times.



5X

In this case, all memories (including colour memories and command memories) are cancelled.

Blind Modification of the Intensities in the Memories

in a single memory

To select the memory, press the SMM key, press the key or keys corresponding to the memory number desired and confirm the operation by pressing the "LOADING" key.

in a series of memories

To select a series of memories, press the SMM key, enter the number of the first memory, press the "<-->" key or the + key and finally enter the No. of the last memory.

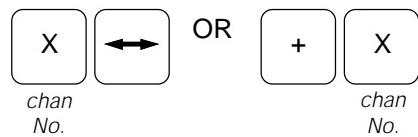
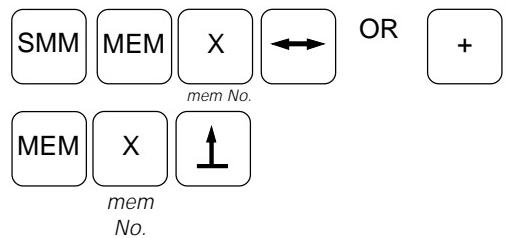
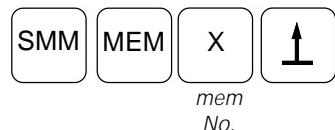
At the end of the selection, the screen displays the content of the last memory selected. Confirm the operation by pressing the "LOADING" key.

channel selection

Press the key or keys corresponding to the desired channel, then you can request other channels by pressing the + key followed by a channel No.

You can also call a series of channels, first enter the No. of the first channel, press the "<-->" key and enter the No. of the last channel. The selection may be a combination of these two operations.

This modification is possible only in the intensity memories but not in the command or colour memories.

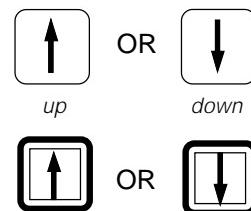


modification of the intensity in %

Use of the "UP" or "DOWN" keys or symbols modify, in steps of 1 %, the value of the selected channels in all the selected memories, so long as this value is not zero.

Example : selection of the channel 2 in the memories 1 to 3.
For an increase of 5 %, the values change

such that			to the new values		
MEM	CIR	%	MEM	CIR	%
1	2	80	1	2	85
2	2	0	2	2	0
3	2	50	3	2	55



Remarks

If only one memory is loaded, its intensity can be progressively controlled by means of the intensity scale and mouse.

If more than one memory are loaded, this means is not operating.

If several channels with different intensities are selected and set at FF, the balance between these channels is lost.

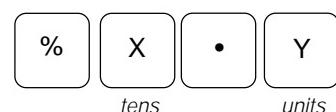
In the SMM mode, the "RET" key is not operating. The modifications are directly made in the memories, there is no need to confirm.

modification of the intensity in tens of %

If you use the operation "% " key, tens of %, "•" (point) and units of %, the value of all the selected channels will be equal to the allocated percentage in all the selected memories.

Moreover, if one or more channels were not allocated in one or more of the selected memories, this channel or these channels will be allocated in the memories.

Example : selection of the channels 1 to 4 in the memories 1 to 5



after % 8 modification the intensities become

MEM	CHAN/%			
1	1/100	2/80	3/40	4/100
2			3/40	
3	1/100	2/50		4/100
4				
5		2/60		

MEM	CIR/%			
1	1/80	2/80	3/80	4/80
2	1/80	2/80	3/80	4/80
3	1/80	2/80	3/80	4/80
4	1/80	2/80	3/80	4/80
5	1/80	2/80	3/80	4/80

REMARK:

The following operations are also possible: proportional corrections

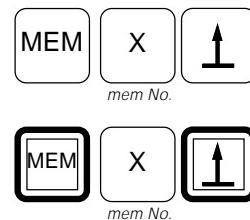


Loading the Memories into the Submasters

loading a memory into a selected submaster

To load a memory in a selected submaster, press the "MEM" button, enter the number of the memory via the numeric keyboard and confirm the operation by pressing the "LOADING" key

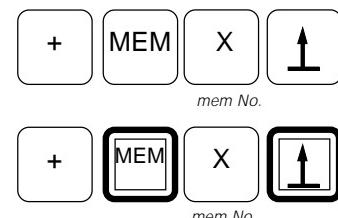
You will arrive at the same result by using a combination of desk + mouse operations.



adding a memory in a selected submaster

To add a memory in a selected submaster, press the "+" key and the "MEM" key, enter the number of the memory via the numeric keyboard and confirm the operation by pressing the "LOADING" key.

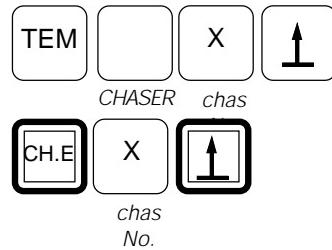
You will arrive at the same result by using a combination of desk + mouse operations.



loading a chaser into a selected submaster

To load a chaser in a selected submaster, press the "TEM" key and the "CHASER" key simultaneously, enter the number of the chaser via the numeric keyboard and confirm the operation by pressing the "LOADING" key.

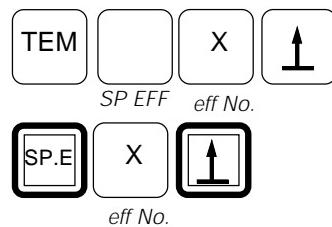
You will arrive at the same result by using a combination of desk + mouse operations.



loading a special effect into a selected submaster

To load a special effect in a selected submaster, click the "SPE EFF" symbol, enter the number of the special effect via the numeric keyboard and confirm the operation by pressing the "LOADING" key.

You will arrive at the same result by using a combination of desk +



mouse operations.

loading a series of memories into a series of selected submasters

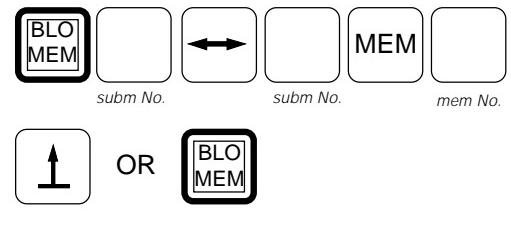
To restore a series of memories in a series of submasters, click "BLO.MEM" symbol, select the series of submasters desired, press the "MEM" key, enter the number of the first memory of the series and confirm the operation by pressing the "LOADING" key or clicking once again the "BLO.MEM" symbol.

The memories are loaded in their sequence in increasing order of the selected submasters.

To activate the submasters, their potentiometers will go on the position "0" (if not the submaster number is blinking).

REMARK:

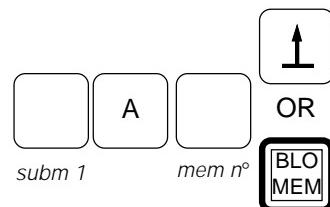
- 1 The sequence «SUB 1, BLO MEM, SUB No., <-->, SUB. No., MEM» can be introduced in a softkey (example A). You must add "SUB 1" at the beginning of the programmation in order to execute the softkey correctly.
We will have the following sequence:
- 2 The "BLO.MEM" function is inactive when the ON/OFF key is out.



loading a sequence of chasers into a series of selected submasters

Proceed the same way as above by entering "TEM" and the number of the first chaser of the series.

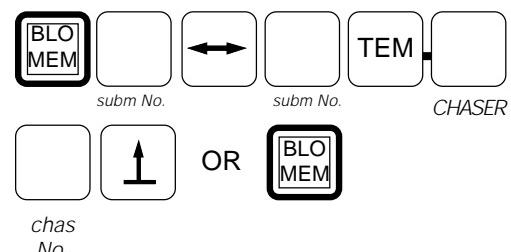
The chasers are loaded in their sequence in increasing order of the selected submasters.



loading a sequence of special effects into a series of selected submasters

Proceed the same way as above by entering the number of the first special effect of the series.

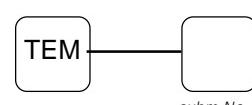
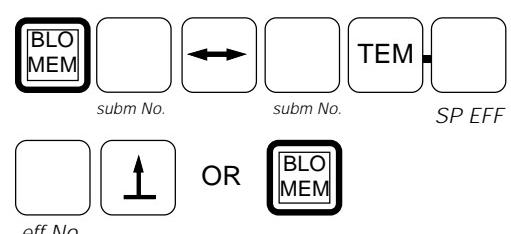
The effects are loaded in their sequence in increasing order of the selected submasters.



starting and/or stopping a chaser or a special effect in a selected submaster

To start and/or stop a chaser or an effect loaded in a selected submaster, you need only operate the "TEM" key and the key of the submaster simultaneously.

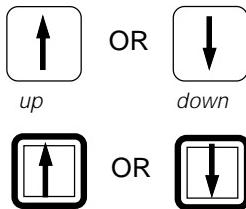
Note that, on each stoppage, the effect repositions on the first step.



TENOR

speeding up or slowing down a chaser or a special effect loaded into a selected submaster

Action on the "UP" key speeds up, and on the "DOWN" key slows down the chaser or the special effect loaded in the selected submaster. This modification on the rate of change acts in real time and the memory containing the effect is likewise modified. Moreover, if the effect is allocated in different submasters, it is modified in real time in all the submasters in which it exists.



stopping and/or restarting on a step a chaser or a special effect in a selected submaster

By clicking the "STO" symbol you can stop on the step occupied by an active chaser or special effect.



Clicking this symbol again restarts the effect from where it stopped, there is no rest to 0.

Erasing Submasters

erasing the contents of a selected submaster

To erase the contents of a selected submaster, click the "ERA SUB" symbol twice or press the "ERA" button twice.



erasing the contents of all submasters

To erase the contents of all submasters, select a submaster, click the "ERA SUB" symbol five times or press the "ERA" button five times.



Individually testing the Channels of a Show

In submaster mode and in crossfade mode you can individually view each channel of the show (i.e. only the channels which are at least in one memory, chaser or special effect are considered).

To do this, click the "TES CHA" symbol to test the first channel, then click the "TES CHA" once again to test the next channel and so on up to the end.



Correction Sum to the Output

You can momentary correct the intensities of some channels during the show; these intensities must be different of 0).

- Select an empty register via the submaster key or via de mouse.
You can for example, reserve submaster 24 for the correction sum and so make these operations before the show.
- Select the channel or channels to correct.
These channels are shown at 100 % whatever the chosen value is.



subm No.



chan n°



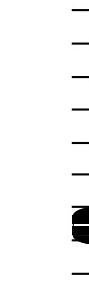
chan n°



...



mem No.



- Click twice on the "ASS" symbol (the symbol under the submaster number lit in yellow).
- The channels are displayed at FF no matter which level is chosen

Then move the potentiometer of the selected submaster.
When this potentiometer comes on the 50 % value, you ear a bip and the message "ASSIGNATION 50 %" is displayed.

Now, if you move down the potentiometer, the intensities of the selected channels move down proportionally, i.e. for a displacement of the potentiometer from the 50 position to the 40 position (20 % of the total inferior course) a 100 % intensity will go to 80 % intensity. In the same way, if you move up the potentiometer, the intensities of the selected channels move up proportionally (maximum 200 %).

To erase this correction sum, select the submaster and click twice the "ASS" symbol (the symbol on the submser No. returns to its normal colour).

REMARKS

- 1 If you erase the correction sum, the potentiometer of the submaster is fictitiously set at 0 (as you should have introduced: "SUB.No., %, 0"). This allows to keep the information of the submaster without surprises on the light.
- 2 You can select simultaneously maximum 3 submasters for correction sum.

CHASER MODE

SUMMARY

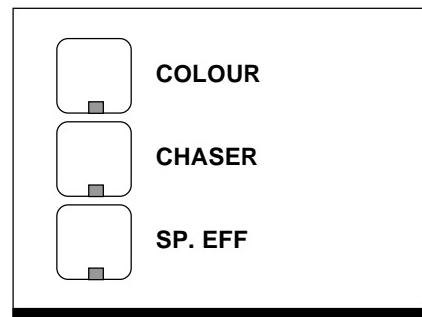
Foreword	41
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Foreword

This mode allows you recording of maximum 25 chasers.
A chaser consists of a series of steps, at most 24, of which one only is relevant at any moment.
You can put all of the channels into each step.
The chaser is said to be positive if, in the relevant step, the channels are lit whilst the other steps are unlit. It is said to be negative in the opposite case.
In a progressive chaser, the effect changes steadily from the first step towards the last, so as to recommence at the first.
In a pendulum chaser, the effect changes steadily from the first step towards the last, so as to reverse up to the first and so on.

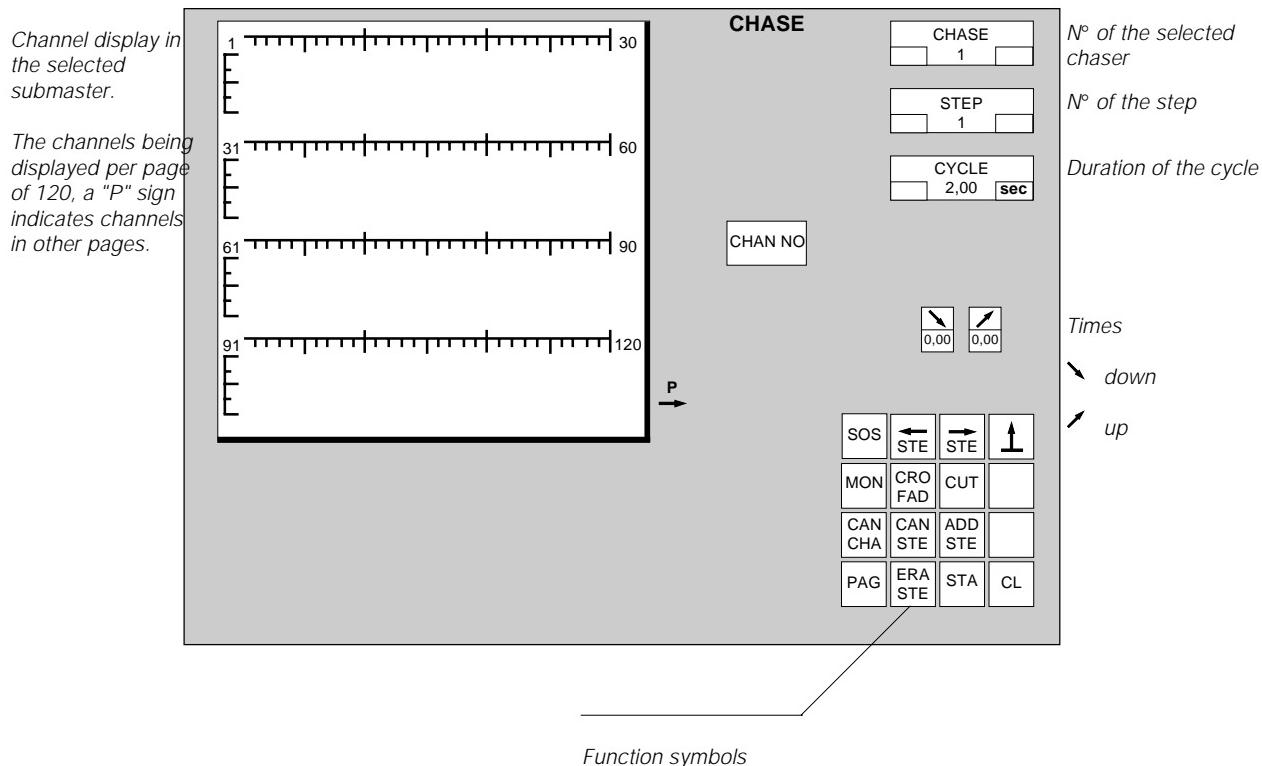
Mode Selection

To enter the CHASER mode, simply click the "CHASER" key.



KEYBOARD FOR ACCESS TO CHASER MODE

Chaser Screen



Definition of Symbols

	Operator help		Cancel a step
	Display (monitor)		Erase the contents of a step
	Cancellation of a chaser		Add a step
	Change page of the channel indicator display		Start
	Previous step		Cancellation of an operation
	Next step		Loading a chaser
	Fade sequencing		
	Abrupt sequencing		

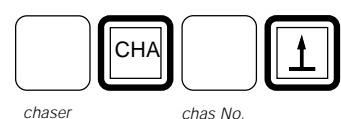
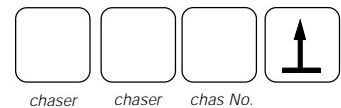
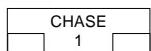
Creation of a Chaser

Selection of a chaser

To select a chaser, you press twice the button for entering this mode, you enter the number of the chaser via the numeric keyboard and you confirm the operation by pressing the "LOADING" key.

You will arrive at the same result by using a combination of desk + mouse operations.

The No. of the selected chaser appears in the symbol



Giving the channels of the first step

On the numeric keyboard, press the key or keys corresponding to the first desired channel N°, press the "<->" key and press the key or keys corresponding to the last desired channel N°.

Then press the + key or the - key and repeat the selection operations for the series of consecutive channels which you wish to select or to deselect.

OR

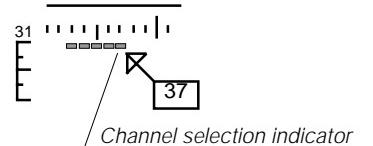
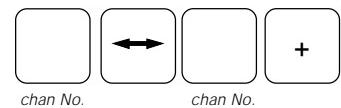
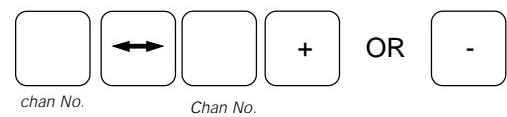
Take the cursor along the selection line. The channel N°s scroll in the symbol.

Click once the N° of the first desired channel appears.

An indicator of selected channel lights up . Keep the key of the mouse pressed and move the cursor along the selection line. Release the key when the N° of the last desired channels appears. The indicators are lit.

Repeat the operation to select another group of channels.

If you wish to deselect channels, you only need to act in the same way on the selected channels.



NOTE : see chapter 2 for channel selection

Calling up the following step

After having allocated channels to the first step, call up the following step by clicking on the ADD STE symbol then allocate channels to this step in the same way as in the previous paragraph.

You will repeat these operations for each of the steps (with a maximum of 24) which your chaser will contain.



TENOR

Preparing the sequencing

You now have to decide whether the sequencing between each step will be made abruptly or in accordance with up and down times of the intensities which you will determine.

To set abrupt sequencing, click the "CUT" symbol.

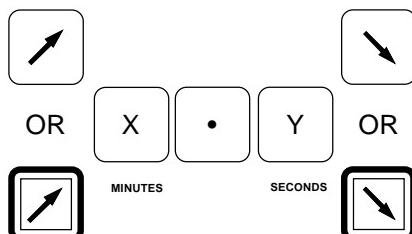


To set fading sequencing, click the " CRO FAD" symbol.

Giving the up and down times of the intensities

Press the key or click the symbol for going up, then allocate the time in minutes and or seconds as described above and finally press the key or click the symbol for going down.

Refer to chapter 2, for more details on the allocation of times.



Giving the duration of the cycle

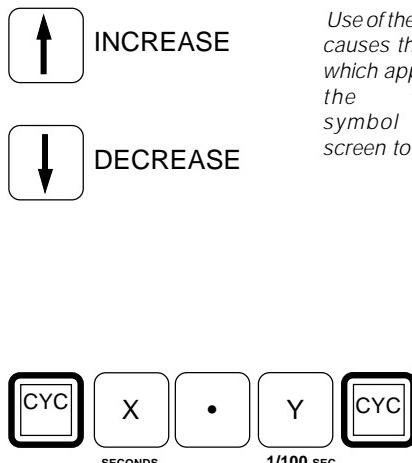
At this point you must specify the duration of the cycle of your chaser, that is to say the total time of passage from the first to the last step.

For this, two methods are at your disposal; you can use the up and down keys of the desk (see opposite) or directly enter the time via the operations below.

Click the "cycle" symbol on the screen, then via the numeric keyboard enter the total duration of the cycle in seconds and 1/100 of seconds.

- For a time in seconds, press the figure or figures then press the point key.
- For a time in 1/100 of seconds, only press the figures.
- For a time in seconds and in 1/100 of seconds, press the figure or figures of the seconds then press the point key and press the figures of the 1/100 of seconds.

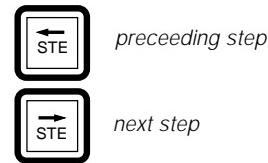
Confirm the order by clicking the "cycle" symbol again.



Selecting the following or preceeding step

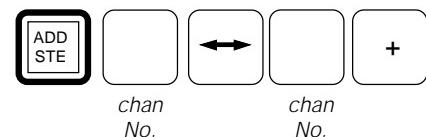
In a selected chaser, you can view and modify the contents of a step (even giving channels).

To view the steps of a chaser, you will use, by clicking them, the symbols opposite which select the step following or the step preceeding the one displayed.



Inserting a Step

Click the "next or preceeding step" symbols to select the step after which you want to have this additional step, click the ADD STE symbol and enter the channels; all the following steps see their number updated.



Emptying a selected step

When you have selected a step, by clicking the ERA STEP symbol you erase the contents of this step which from then on still exists, but empty, in the sequence of the chaser.



Cancelling a selected step

When you have selected a step, by clicking the CAN STEP symbol you erase this step which from then on no longer exists in the sequence of the chaser and all the following steps see their number updated.



Viewing the selected chaser running

When you have selected a chaser, you can view it by clicking the STA symbol.



Cancelling a selected chaser

When you have selected a chaser, by clicking the CAN CHA symbol twice you erase this chaser.



Cancelling all the chasers

To erase all the chasers, select any one of them and click the CAN CHA symbol five times.



Viewing

By pressing the MON key or clicking the MON symbol, you view all the contents of the selected chaser.

Firstly you will find the N° of the chaser, its quantity of steps, its cycle and the up and down times.

 OR 

CHAS N°	STEP N°	CYCLE DURATION	 TIMES
1	5	01,50	00,00
2	0	00,00	00,00
3	0	00,00	00,00
4	0	00,00	00,00
5	0	00,00	00,00

TO QUIT MODE CL X 2 TO PUSH MOUSE TO PAGE

Special effect Mode

Summary

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• Cancelling all the effects	54
Viewing	54

Foreword

Your TENOR contains a schedule of 20 preprogrammed effects which you only need to feed through the channels you wish to use in these effects.

The list of these effects is presented to you in groups of ten by clicking the MON symbol.

To view the following series click once, to exit click twice.

This list of effects comprises:

The Chasers

A chaser consists of a series of steps, maximum 99, of which one only is relevant at any moment.

You can put one channel into each step.

The chaser is said to be positive if, in the relevant step, the channel is lit whilst the other steps are unlit. It is said to be negative in the opposite case.

In a progressive chaser, the effect changes steadily from the first step towards the last, so as to recommence at the first.

In a pendulum chaser, the effect changes steadily from the first step towards the last, so as to reverse up to the first and so on.

The Full Lights

In a full light, the steps successively add to or subtract from those already existing.

The full light may be positive or negative, progressive or pendulum like, as for the chaser.

The Groups

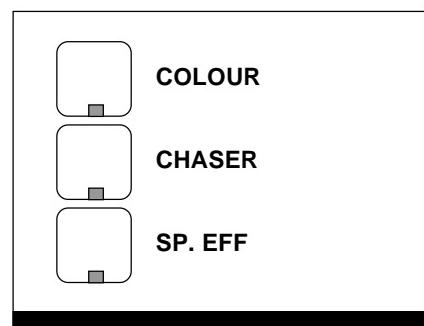
The revolving groups make the channels change by groups but these channels are all at 0 or at 100, whereas in the burst-action undulating groups the wave modulates the channels in intensity in bursts and in the fading undulating groups the wave progressively modulates the channels in intensity.

The Flickerings

The flickerings make the channels change in random mode.

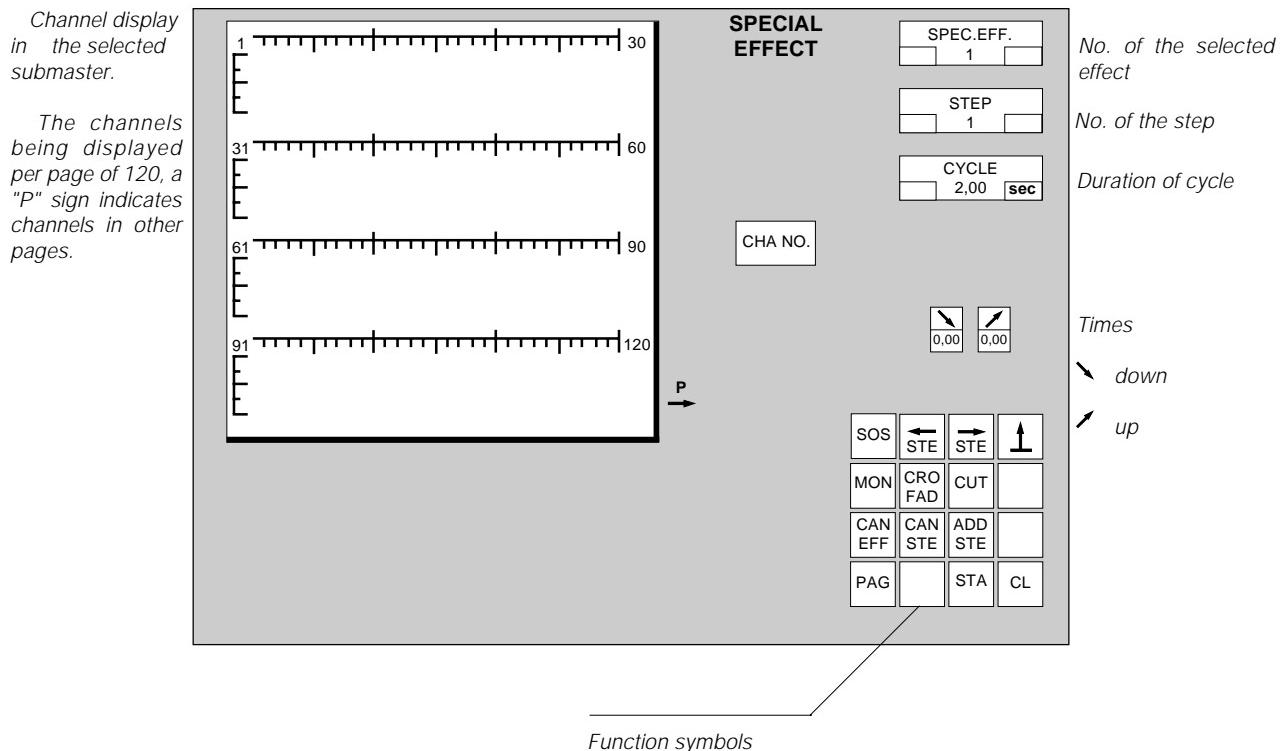
Mode Selection

To enter the SPECIAL EFFECT mode, simply click the "SP.EFF" key.



KEYBOARD FOR ACCESS TO SPECIAL EFFECT MODE

Special Effect Screen



Definition of Symbols

	Operator help		Cancel a step
	List of effects		Add a step
	Cancellation of an effect		Start
	Change page of the channel indicator display		Cancellation of an operation
	Previous step		Loading a special effect
	Next step		
	Fade sequencing		
	Abrupt sequencing		

List of special Effects

- 1 CHASE SINGLE PROGRESSIVE POSITIVE
The effect changes steadily from the first step towards the last so as to recommence at the first.
When starting, all the channels are unlit.
- 2 CHASE SINGLE PROGRESSIVE NEGATIVE
The effect changes steadily from the first step towards the last so as to recommence at the first.
When starting, all the channels are lit.
- 3 CHASE SINGLE PROGRESSIVE AUDIO
The effect changes steadily from the first step towards the last so as to recommence at the first.
The rate of change of the effect is accelerated by the level of an audio signal.
- 4 CHASE SINGLE BALANCED POSITIVE
The effect changes steadily from the first step towards the last so as to reverse up to the first.
When starting, all the channels are unlit.
- 5 CHASE DOUBLE PROGRESSIVE POSITIVE
The effect changes steadily from the first step towards the last and simultaneously from the last towards the first, then recommences at the beginning.
When starting, all the channels are unlit.
- 6 CHASE DOUBLE PROGRESSIVE NEGATIVE
The effect changes steadily from the first step towards the last and simultaneously from the last towards the first, then recommences at the beginning.
When starting, all the channels are lit.
- 7 CHASE DOUBLE BALANCED POSITIVE
The effect changes steadily from the first step towards the last and simultaneously from the last towards the first, then reverses.
When starting, all the channels are unlit.
- 8 FULL-LIGHT PROGRESSIVE POSITIVE
The effect changes steadily from the first step towards the last so as to recommence at the first.
At the end, all the channels are unlit.
- 9 FULL-LIGHT PROGRESSIVE BALANCED POS.
The effect changes steadily from the first step towards the last so as to reverse up to the first.
At the end, all the channels are unlit.
- 10 FULL-LIGHT PROGRESSIVE NEGATIVE
The effect changes steadily from the first step towards the last so as to recommence at the first.
At the end, all the channels are lit.
- 11 FULL-LIGHT PROGRESSIVE NEGATIVE
The effect changes steadily from the last step towards the first so as to reverse up to the last.
At the end, all the channels are unlit.
- 12 BALANCED
The effect changes steadily from the first step towards the last so as to reverse up to the first.
At the end, all the channels are lit.
- 13 GROUP TURNING
Change of channels per group, all the channels are at 0 or 100 %.
All the channels are unlit at the end.
- 14 GROUP WAVING IN STEPS
The channels are modulated in intensity, in bursts.
All the channels are unlit at the end.
- 15 GROUP WAVING WITHOUT STEPS
The channels are progressively modulated in intensity.
All the channels are unlit at the end.
- 16 GROUP WAVING AUDIO
Similar to the revolving group, but the intensity of the first channel follows the level of the audio whilst the intensities of the following channels follow that of the first channel with a shift period of one step.
- 17 FLICKER RANDOM INDIVIDUAL
Various channels in the group light up at 100 % in random fashion.
- 18 FLICKER RANDOM PROGRESSIVE
The channels light up and go out successively in random fashion.
- 19 FLICKER RANDOM GLOBAL
All the channels of a group light up at 100 % in random fashion.
- 20 FLICKER LIKE LIGHTNING
Flame effect.

Creation off a special Effect

Selection of the effect

To select an effect, press the button for entering this mode twice, enter the number of the effect via the numeric keyboard and confirm the operation by pressing the restore key.

The No. of the selected special effect appears in the syn

SPEC. EFF.
1



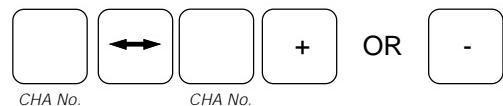
You will arrive at the same result by using a combination of desk + mouse operations.



Giving the channels of the effect

On the numeric keyboard, press the key or keys corresponding to the first desired channel No., press the "<->" key and press the key or keys corresponding to the last desired channel No.

Then press the + or - key and repeat the selection operations for the series of consecutive channels which you wish to select or deselect.



OR

Take the cursor along the selection line. The channel numbers scroll in the symbol.

Click once the No. of the first desired channel appears.

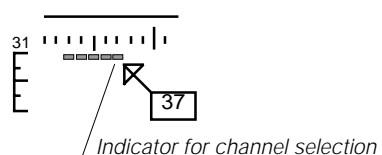
A channel indicator of selected channel lights up. Keep the key of the mouse pushed and move the cursor along the selection line.

Release the key when the No. of the last desired channel appears.

The indicators are lit.

Repeat the operation to select another group of channels.

If you wish to deselect channels you only need act in the same way on the selected channels.



NOTE: see chapter 2 for channel selection

Preparing the sequencing

You now have to decide whether the sequencing between each step will be made abruptly or in accordance with up or down times of the intensities which you will determine.

To set abrupt sequencing, click the "CUT" symbol.

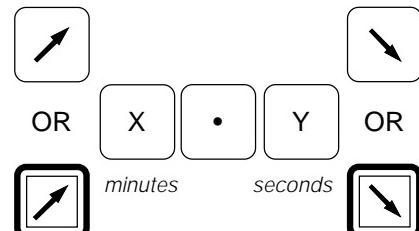


To set fading sequencing, the the "CRO FAD" symbol.

Giving the up and down times of the intensities

Press the key or click the symbol for going up, then allocate the time in minutes and/or seconds and finally press the key or click the symbol for going down.

Refer to chapter 2 for more details on the allocation of times.



Giving the duration of the cycle

At this point you must specify the duration of the cycle of your effect, that is to say the total time of passage from the first to the last step.

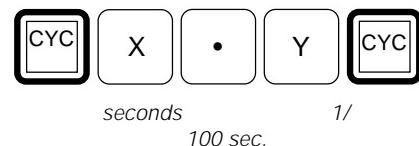
For this, two methods are at your disposal: you can use the up and down keys of the desk (see opposite) or directly enter the time via the operations below.



Use of these keys causes the value which appears in the "cycle" symbol of the screen to vary.

Click the "cycle" symbol on the screen, then via the numeric keyboard enter the total duration of the cycle in seconds and 1/100 of seconds.

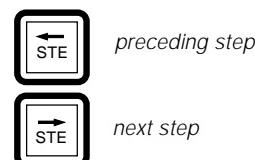
- For a time in seconds, press the figure or figures then press the point key.
- For a time in 1/100 of seconds press only the figures.
- For a time in seconds and 1/100 of seconds, press the seconds figure or figures, press a point then press the 1/100 of seconds figure or figures.



Confirm the order by clicking the "cycle" symbol again.

Selecting the following or preceding step

To view the steps of a selected effect, you will use, by clicking them, the symbols opposite which select the next step or the last step that which is displayed.



Adding a step

Using the "next and previous step" symbols, select the step after which you want to have this additional step (or channel) then click the ADD STE symbol and enter the No. of the channels you want in this new step by means of the keyboard (mouse is inactive) and then click the ADD STE symbol again.



TENOR

Cancelling a selected step

You will use, by clicking them, the symbols which select the next step or the last step to go to the step you want to cancel, then click the CAN STE symbol.



Viewing the selected Effect

After the selection of an effect, you can view it by clicking the "STA" symbol.



Cancelling a selected effect

When you have selected an effect, by clicking the CAN EFF symbol twice you erase this effect.



Cancelling all the effects

To erase all the effects, select any one of them and click the CAN EFF symbol five times.



Viewing

By pressing the MON key or clicking the MON symbol, you view the list of the effects.

Firstly you will find the N° of the effect, its quantity of steps, its cycle and the up and down times.



SPECIAL EFFECTS			
NR	STEPS	CYCLE	TIMES
1	5	01,50	00,00
CHASE SINGLE PROGRESSIVE POSITIVE			
TO PAGE		PUSH MOUSE	

Colour Mode

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Foreword

The TENOR is able to control up to 99 colour scrollers using maximum 24 different colours.

The control signal of these colour scrollers is made through a DMX 512 output line different from the one used to control dimmers. The positions of colour scrollers are not under control of the general master or of the "ON - OFF" button. You can make a fierce black out without any influence on your colour scrollers.

REMARK

Before creating colour memories, you must program your TENOR in function of the possibilities of your colour scrollers. Refer to chapter 8, "ALLOCATION OF THE COLOUR SCROLLERS" - MENU 1.9, to realize this programming

COLOUR CHANGER				
CHANNEL	CHANGER	1° COLOUR	LAST	NUMBER
1	1	00	FF	11
2	2	00	FF	11
3	3	00	FF	11
4	4	00	FF	11
5	5	00	FF	11
6	6	00	FF	11
7	7	00	FF	11
8	8	00	FF	11
9	9	00	FF	11
10	10	00	FF	11
11	11	00	FF	11
12	12	00	FF	11
13	13	00	FF	11
14	14	00	FF	11
15	15	00	FF	11
16	16	00	FF	11
17	17	00	FF	11
18	18	00	FF	11
19	19	00	FF	11
QUIT PAGE		MODE PAGE	CL X 2	

Allocation of the colour scrollers - menu mode 1.9

On this screen, you view the colour scrollers 20 by 20.,

Firstly, you must enter the number of filters which your scroller contains (by default this number is 11). Therefore, click in the NUMBER column on the figures of the scroller whose parameters you wish to modify.

On the desk, with the help of the up and down keys, you increase or decrease the value until it is equal to the number of the filters which your scroller uses.

Then, click the figures in the FIRST column and with the help of the up and down keys of the desk you accurately position the first filter of your scroller. This operation is done in real time and you view the result of your operations on stage.

Proceed in the same way to position the last filter of your scroller.

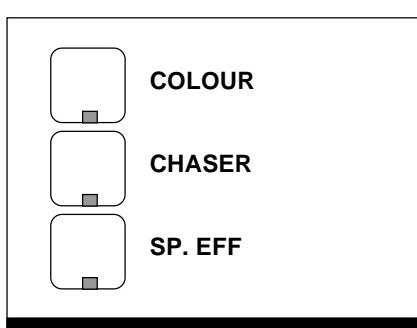
To help you with the task, you can also indicate in the CHANNEL column the number of the channel which you will allocate to the scroller. Use the same up and down keys to modify the channel number.

This instruction is interactive with the colour mode screen.

You will repeat these operations for all the colour scrollers which you are going to use.

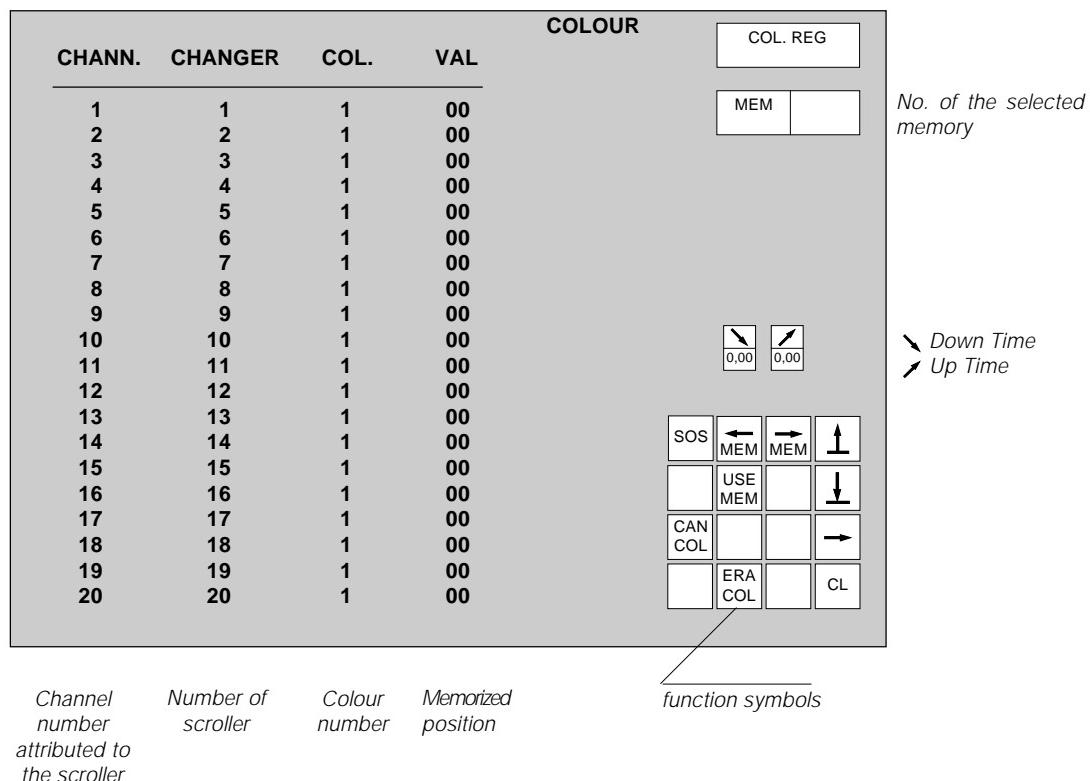
Mode Selection

To enter in COLOUR mode, simply press the "COLOUR" key.



KEYBOARD FOR ACCESS TO COLOUR MODE

Colour Screen



Definition of Symbols

	Operator help		Link from one to another memory
	Cancellation of a memory		Cancellation of an operation
	Return to the initial state		
	Display of the used memories		
	Previous memory		
	Next memory		
	Loading a memory		
	Recording a memory		

Creation of a Colour Memory

Before creating new colour memories, you can:

Set all the colours to the 1 state

Click this symbol twice to position all the filters of the scrollers on the first colour defined in the programming of the colour changers via menu 1.9.



2 X

On the screen, all the values of the COL column are positioned at the value 1.

Note that the numbers of the channels which you have allocated to the scrollers at the time of programming (menu 1.9) appear in the first column (CHANNEL), facing the scroller numbers.

Cancel all the memories

Click this symbol five times to erase all the already created memories
(intensity and control memories remain unchanged).



5 X

Cancel the selected memory

Click this symbol twice to erase the selected memory displayed in the upper right-hand corner of the screen.



2 X

Allocate a colour to a scroller or to a series of scrollers

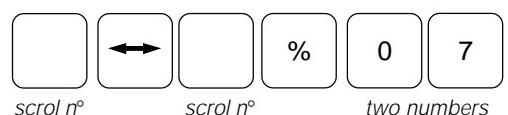
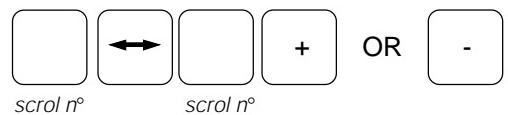
On the numeric keyboard, press the key or keys corresponding to the desired scroller Nos. by proceeding in the same way as for the channel selection described in Chapter 2.

Then press the % key and finally, give the number of the colour you wish to allocate to this or these scrollers.

IMPORTANT

To determine the colour, it is necessary that you enter two figures after the % key.

Thus, to allocate the colour No. 7 for example, you must enter 0 7.



*two numbers
for one colour*

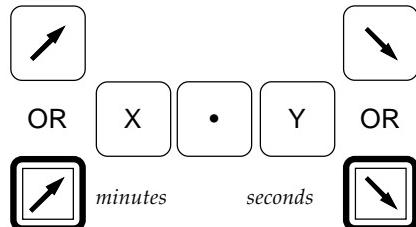
Allocate up & down times to a colour memory

Push the up or down key (or click similar symbol), then allocate a time in minutes & seconds and confirm by pushing or clicking the same key or symbol.

Up & down times are the same and can not be programmed individually.

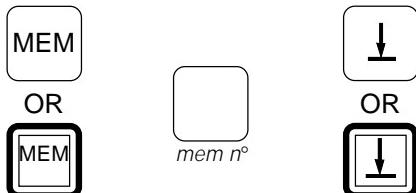
Maximum programmable time is 59 minutes & 59 seconds (59.59).

Default times = 0 (cut).



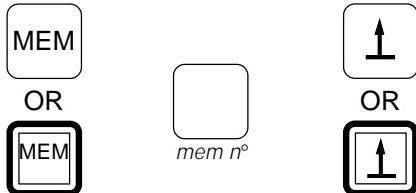
Recording

Press the MEM key or click the symbol, enter the No. of the memory and click the symbol or press the "RECORDING" key to confirm the storing.



Loading a memory

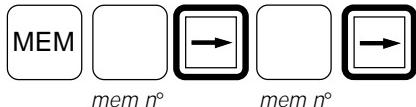
Press the "MEM" key or click the symbol, enter the memory number and click or press the "LOADING" key.



Link between colour memories

Press the MEM key, enter the No. of the first memory, click the "->" symbol, enter the No. of the memory to link and click the "->" symbol again.

It is exactly the same as for normal memories.



Speed

- With the old GELBUS versions (software older than 3.0) colour channel n°1 is used for controlling the transfert speed of gelrolls.
- From version 3.0, address GELBUS +1 is used to control its speed (only in the Frame Mode).

Ex: with a GELBUS address 10 the speed is controlled through channel 11.

This allows an individual control of each GELBUS.

For further information, please refer to GELBUS user's manual.

Viewing

You can view the list of all used memories by clicking the USE MEM symbol.

You can view the memories, the command memories and the colour memories.

The screen display also the links between the memories, the standby times and the up or down times.



USED MEMORIES					
TIMES	LINK				
1	→ M2	↖ 00,00	↖ 00,10	↗ 00,00	↗ 00,05
2	→ M2	↖ 00,00	↖ 00,10	↗ 00,00	↗ 00,05
2,5	COLOUR MEMORIES				
3		↖ 00,00	↖ 00,10	↗ 00,00	↗ 00,05
3,5	COMMAND MEMORIES				



FLASH Mode

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• Erasing the contents of all flash submasters	71

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Foreword

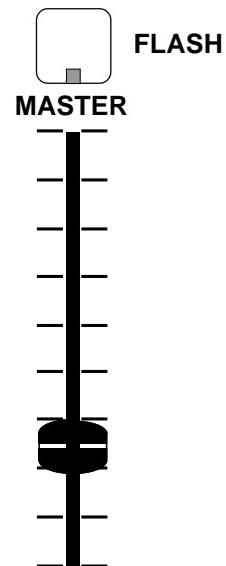
You have at your disposal 12 flash lines which are, as it were, submasters without an individual fader, each of them under key-control with LED indication.

In each flash line, you can put either a memory, a chaser or a special effect which has previously been set up.

Lighting by the flash lines may be carried out in various ways, either by turning on/turning off by pulse action the key, or turning on/turning off by double action on the key, or by audio modulation.

In all cases, both for the memories and the chasers or the effects, the outputs are globally under the influence of the general flash fader.

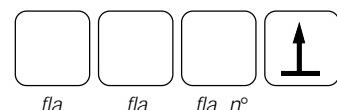
Note that it is not possible to modify either the value of a channel or of a loaded memory, or the configuration of a loaded chaser. To do this, you must go through these various working modes again and make a new loading in the flash lines.



Flash Submaster Selection

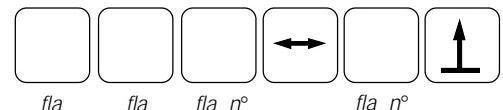
Selecting a flash submaster for the loading of a memory, a chaser or a special effect

To select a flash submaster, press the button for entering this mode twice, enter the number of the flash submaster via the numeric keyboard and confirm the operation by pressing the "LOADING" key.



Selecting a series of flash submasters for the loading of a memory, a chaser or a special effect

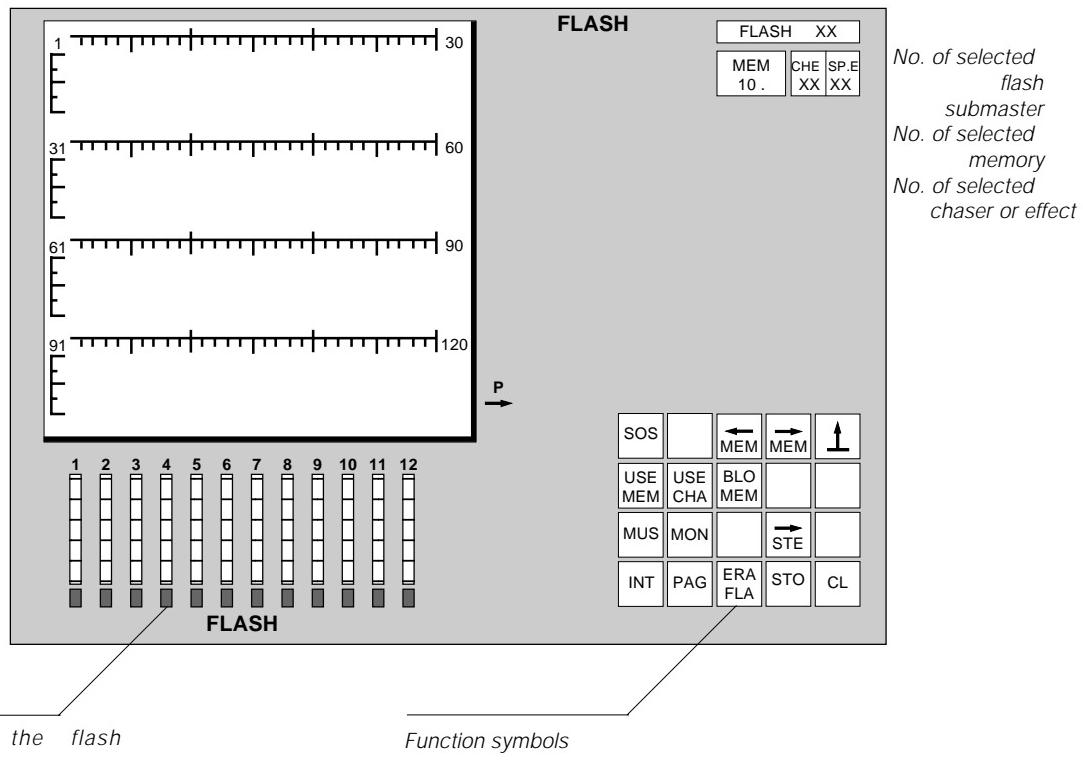
To select a flash submaster, press the button for entering this mode twice, enter the number of the first flash submaster via the numeric keyboard, press the "<-->" key, enter the No. of the last flash submaster and confirm the operation by pressing the "LOADING" key.



Flash Screen

display of the contents of the selected submaster

The channels being displayed per page of 120, a "P" sign indicates channels in other pages



DEFINITION OF SYMBOLS

	Operator help		Change page of the channel indicator display
	Display of used memories		Select audio modulation mode
	Display of used channels		Select internal clock mode
	Previous memory		Memory block
	Next memory		Erase a flash submaster
	Loading a memory		Stop (pause)
	Next step		Cancellation of an operation
	Display (monitor)		

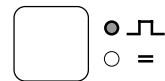
Preparation of the Flash Submasters Actions

Lighting by the flash submasters may be carried out in various ways, either by turning on/turning off with pulse action on the key, or by turning on/turning off with double action on the key, or by audio modulation.

Turning on/turning off with pulse action

When you select this mode of action, the channels will light up on the first flash keystroke and will go out as soon as you release this key.

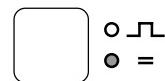
To obtain this result, press the key indicated opposite (the upper LED must flash).



Turning on/turning off with double action

When you select this mode of action, the channels will light up on the first flash key stroke and will go out on the second stroke of this key.

To obtain this result, press the key indicated opposite (the lower LED must light up).

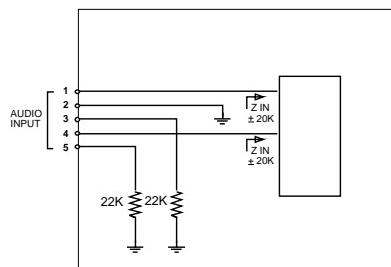
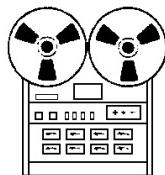


audio modulation mode

To open the modulation mode for the flash submasters via the audio input click the "MUS" symbol ; consequently:



- If the flash submasters contain intensity memories, chasers or special effects, they are modulated by the level of the audio signal.
- If the flash submasters contain chasers, they will run step by step following the level of the audio signal.
- The frequencies are :
 - for the flash submasters No. 1 to 9 : overall average level of the audio signal
 - for the flash submasters No. 10 : the level of the group of B (bass) frequencies
 - for the flash submasters No. 11 : the level of the group of M (middle) frequencies
 - for the flash submasters No. 12 : the level of the group of T (treble) frequencies



The level of the AUDIO signal can be between 10 mV and 20 V, the input impedance is of about 20 kΩ.

To quit the audio modulation mode

Click the "INT" symbol to quit the audio modulation mode



Audio Adjustment

Your TENOR allows you to adjust the influence of the various frequency spectra (bass, middle and treble) on the modulation, as well as the rate of change of the effect.

These 4 parameters may be adjusted separately and these modifications naturally influence the value of the overall average of the audio signal.

Adjustment procedure

We will take as an example the adjustment of the input level of the group of B (bass) frequencies.

You will proceed similarly for the adjustment of the other three parameters.



After having loaded the No. 10 flash submaster with either a memory, a special effect or a chaser, click the MUS symbol.



Restore your submaster and drive it with an audio signal. On the screen, you view the effect by the movement of the bargraphs of the channels which you have allocated to this flash submaster.

Now press the TEM key of the submaster mode and keep this key pushed in.

By acting on the fader of submaster No. 22 you effect the adjustment of the input level of the B frequency group.

Adjustment of the levels

Move No.21 fader while keeping "TEM" key pressed to adjust the response rate of any flash submaster.



Keep the key pressed

Move No.22 fader while keeping "TEM" key pressed to adjust the B frequency group (flash submaster No 10).

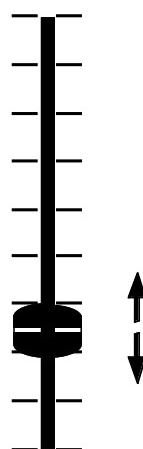
Move No.23 fader while keeping "TEM" key pressed to adjust the M frequency group (flash submaster No 11).

Move No.24 fader while keeping "TEM" key pressed to adjust the T frequency group (flash submaster No 12).

After having carried out these adjustments, when you return to SUBMASTER mode, you will see on the screen that the symbols of No.21, 22, 23 and 24 submasters are flashing.

This means that the physical position of the potentiometers of these submasters may be different from their actual position.

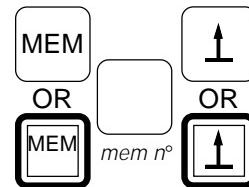
To take back control, set the potentiometers to 0 and take them up until they hook onto the value that they had initially, that is until the symbols of these submasters no longer flash.



Loading in the Flash Submasters

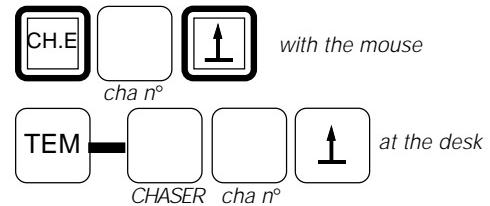
Loading of a memory in a selected flash submaster

To load a memory in a selected flash submaster, press the MEM button, enter the number of the memory via the numeric keyboard and confirm the operation by pressing the "LOADING" key.



Loading of a chaser in a selected flash submaster

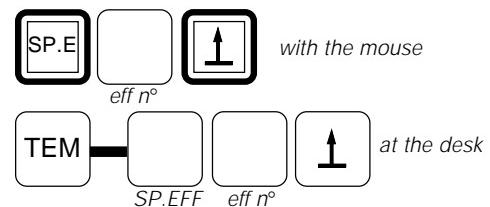
To load a chaser in a selected flash submaster, click the CHE symbol, enter the number of the chaser via the numeric keyboard and confirm the operation by clicking the "LOADING" symbol. The loading can also be operated from the desk.



Loading of a special effect in a selected flash submaster

To load a special effect in a selected flash submaster, click the SP.E symbol, enter the number of the special effect via the numeric keyboard and confirm the operation by clicking the "LOADING" symbol.

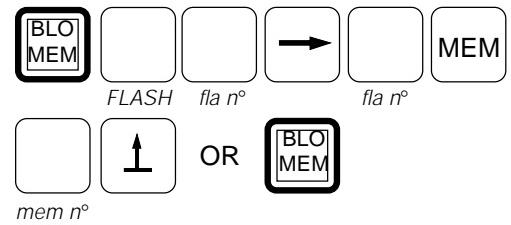
The loading can also be operated from the desk.



Loading of a series of memories in a series of selected flash submasters

To load a series of memories in a series of selected flash submasters, click the "BLO MEM" symbol, define the list of flash submasters, press the "MEM" button, enter the number of the first memory of the series via the numeric keyboard and confirm the operation by pressing the "LOADING" key or by clicking the "BLO MEM" symbol again.

The memories are loaded in their sequence in increasing order of the selected flash submasters.

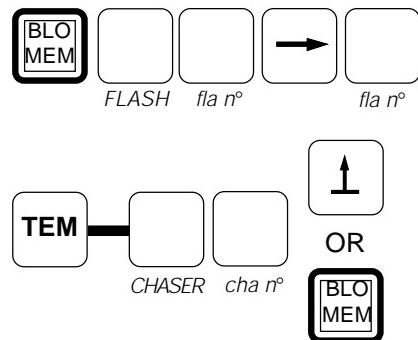


REMARK:S

- The sequence Flash, BLO.MEM, Flash No., -->, Flash No., Mem can be introduced in a softkey (A for example). You must add "Flash" at the beginning of the programmation in order to execute the softkey correctly.
- The "BLO.MEM" function is inactive when the ON/OFF button is out.

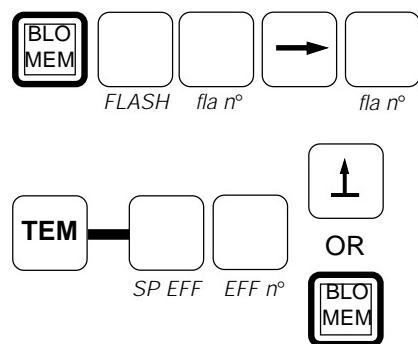
Loading of a series of chasers in a series of selected flash submasters

To load a series of chasers in a series of selected flash submasters, click the "BLO MEM" symbol, define the list of flash submasters, press the "CHA" button or click the symbol, enter the number of the first chaser of the series via the numeric keyboard and confirm the operation by clicking the "BLO MEM" symbol again or pressing the "LOADING" key.
The chasers are loaded in their sequence in increasing order of the selected flash submasters.



Loading of a series of special effects in a series of selected flash submasters

To load a series of special effects in a series of selected flash submasters, click the "BLO MEM" symbol, define the list of flash submasters, press the "SP EFF" button or click the symbol, enter the number of the first special effect of the series via the numeric keyboard and confirm the operation by clicking the "BLO MEM" symbol again or pressing the "LOADING" key.



Action on Chasers or Special Effects loaded in the Flash Submasters

Starting and/or stopping a chaser or a special effect loaded in a selected flash submaster

To start and/or stop a chaser or a special effect loaded in a selected flash submaster, you only need to operate the button of the submaster.

The effect of this button will depend on the contents of the flash submaster, either turning on/turning off by pulse action, or turning on/turning off by double action (see preparation of the flash submaster actions - preceding pages).

Note that, on each stop, the effect repositions on the first step.



fla n°

Speeding up or slowing down a chaser or a special effect loaded in a selected flash submaster

Action on the key speeds up and on the key slows down the chaser or the special effect loaded in the selected flash submaster. This modification of the rate of change acts in real time and the memory containing the effect is likewise modified.

Moreover, if the effect is allocated in different submasters or flash submasters, it is modified in real time in all the submasters in which it exists.



OR



Stopping and/or restarting on a step a chaser or a special effect loaded in a selected flash submaster

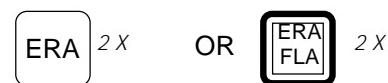
By clicking the "STO" symbol you can stop on the step occupied by an active chaser or a special effect.

Click this symbol again to restart the effect from where it stopped. There is no reset to 0.



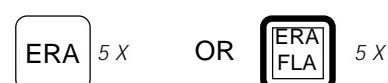
Erasing the contents of a selected flash submaster

To erase the contents of a selected flash submaster, click the "ERA FLA" symbol twice or press the "ERA" key twice.



Erasing the contents of all flash submasters

To erase the contents of all flash submasters, click the "ERA FLA" symbol five times or press the "ERA" key five times.



TENOR

FLASH REG ...					MEMORY No. ...		
TEMPS	00,00	00,05	00,00	00,05	MON	OR	MON
1 : FF							
2 : FF							
3 : FF							
4 : FF							
5 : FF							
6 : FF							
7 : FF							
8 : FF							
9 : FF							
TO PAGE: PAGE					QUIT: MON		

CHANNEL 5 USED IN MEMORIES ...					chan No.	MON	OR	chan No.
1 : FF								
5 : 20								
9 : FF								
PAGE: MON					QUIT: CL X 2			

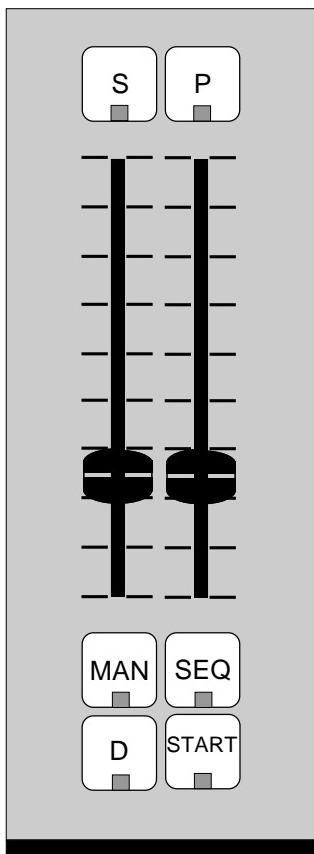
USED MEMORIES					USE MEM		
TIMES	LINK						
1	→ M2	00,00	00,10	00,00	00,05		
2	→ M2	00,00	00,10	00,00	00,05		
2,5	COLOUR MEMORY						
3		00,00	00,10	00,00	00,05		
3,5	COMMAND MEMORY						
TO PAGE - QUIT					PUSH CL X 2 PUSH		

USED CHANNELS					USE CHA	
1 : M E C	21 : M E C					
2 : C	22 : E					
3 : E	23 : C					
4 : E	24 : C					
5 : M E C	25 : M					
6 : M E C	26 : M C					
7 : M	27 : E C					
8 : E	27 : E					
9 : C	28 : M E C					
- TO PAGE					PUSH MOUSE	

Crossfade Mode

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Foreword

Crossfading denotes the progressive replacement of cues (memories) on stage by cues in preset, in the time periods stored for the descent of the cues on stage and the rise of the cues in preset.

The crossfade may be performed either manually by operating 2 faders, or automatically by operating a key which starts the progress of the crossfade.

The crossfade mode makes it possible to carry out channel intensity corrections, channel inhibitions and speed of crossfade corrections. It also makes it possible to carry out abrupt crossfades, halt during crossfade, reversals and also cues superpositions.

KEYBOARD FOR ACCESS TO THE CROSSFADE MODE

Crossfade Register Selection

Selecting the stage playback of the crossfade for the loading of a cue memory, a chaser or a special effect.



Selecting the preset playback of the crossfade for the loading of a cue memory, a chaser or a special effect.



Channel selection

Proceed in the same way as for the selection of submaster channels as described in chapter 2.

Fading

For the allocation of times and the modification of times, proceed in the way described in chapter 2.

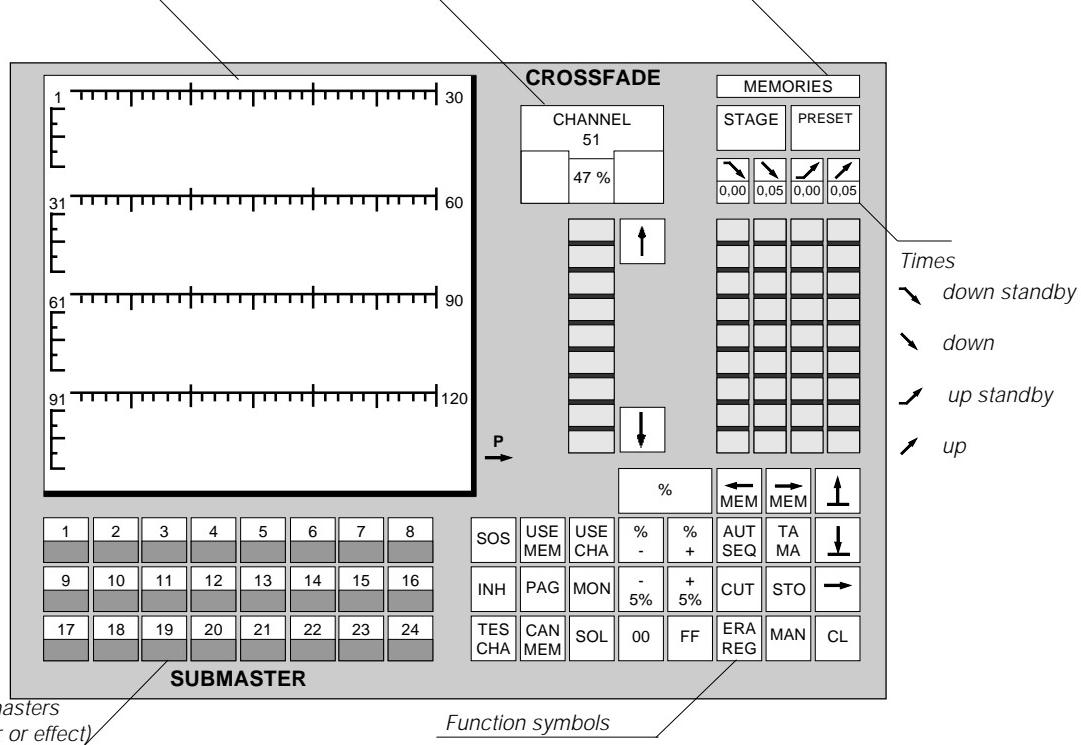
Crossfade Screen

Display of the contents of the selected register (Stage or Preset).

The channels being displayed per page of 120, a "P" sign indicates channels in other pages.

No. of selected channel,
intensity of this channel and
bargraph

No. of memory on stage
No. of memory in preset



Definition of Symbols

	Operator help		Subtract 5 % of the existing values
	Channel inhibition		Intensity at 0 %
	Test of selected channels		Intensity at 100 %
	Cancellation of memory		Call previous memory
	Display of the used memories		Call next memory
	Change page of the channel indicator display		Automatic sequence
	Display of the used channels		Erase selected playback
	Display (monitor)		Record the contents of a manual console
	Isolation of channel		Manual crossfade
	Intensity percentage		Halt during crossfade
	Add a % to the existing values		Loading of a memory
	Subtract a % from the existing values		Recording of a memory
	Add 5 % to the existing values		Link from one memory to another memory
			Abrupt crossfade
			Cancellation of an operation

Loading in the Crossfade Register

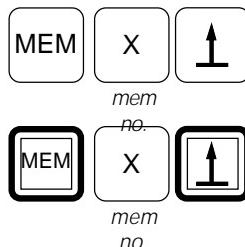
Loading of a memory in a selected crossfade register

To load a memory in a crossfade register, press the MEM key, enter the number of the memory via the numeric keyboard and confirm the operation by pressing the "LOADING" key.

You will arrive at the same result by using a combination of desk + mouse operations.

The display always shows :

- the number of the memory loaded in the stage playback
- the number of the memory loaded in the preset playback with the times of this memory (times of the crossfade)



If you wish to obtain a memory other than that of the preset playback, proceed as below.

Either the next memory

Click "--> MEM" symbol and press the "LOADING" key :
the preset playback contains the next memory in the sequence.



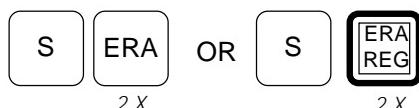
or the preceding memory

Click "<-- MEM" symbol and press the "LOADING" key :
the preset playback contains the preceding memory of the sequence.



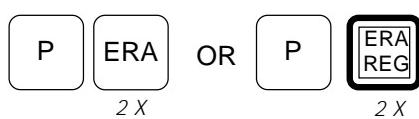
Erasing the "STAGE" playback

To erase the contents of the STAGE playback, press the S key, then click the "ERA REG" symbol twice or press the "ERA" key twice.



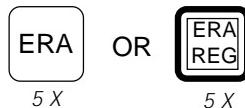
Erasing the "PRESET" PLAYBACK

To erase the contents of the PRESET playback, press the P key, then click the "ERA REG" symbol twice or press the "ERA" key twice.



Erasing the contents of both crossfade registers

To erase the contents of both crossfade registers, click the "ERA REG" symbol five times or press the "ERA" key five times.



After an erasure, the crossfade is automatically set in sequential mode (the SEQ LED lights up).



To cancel the selected memory

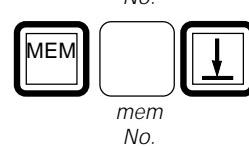
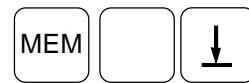
Click the "CAN MEM" symbol

Recording a selected Crossfde Register

Recording in an inexistent memory

After having selected the playback whose intensities you wish to record, press the "MEM" key to select the memory, press the key or keys corresponding to the desired memory number and confirm the operation by pressing the "RECORDING" key.

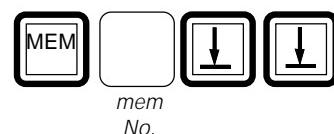
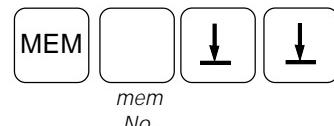
You can also select a memory by means of a mixed mouse/ desk/ mouse operation.



Recording in an existent memory

If you wish to record in an already created memory, proceed as above. If, at this instant, this memory is not empty, the "memory occupied" message flashes in red and a sound signal rings out, so confirm the operation by pressing the "RECORDING" symbol or key a second time whereupon the contents of the memory is replaced and the message disappears.

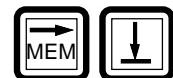
You can also use a mixed mouse/ desk/ mouse operation.



Recording in the next memory

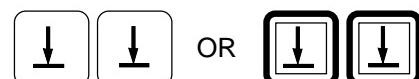
If you wish to record in the next memory, assuming that there is one, call it up by clicking the "--> MEM" symbol and you record by means of the symbol or key.

If, at this instant, this memory is not empty, the "memory occupied" message flashes in red and a sound signal rings out, so confirm the operation by pressing the symbol or key a second time whereupon the contents of the memory is replaced and the message disappears.



Recording in the memory already loaded in this playback

If you wish to record in the memory already loaded in the selected playback, you only need to activate the "RECORDING" symbol or key twice.



TENOR

Modifying the sequential Sequence of the Memories

This operation is possible only in the submasters or the crossfade registers

From the memory X to the memory Y

The new sequence will position the memory Y after the memory X selected at this instant (i.e. displayed, not necessarily the memory loaded on stage).

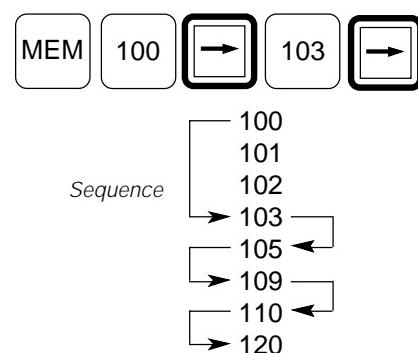
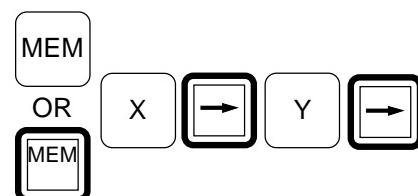
In sequence, the TENOR will pass from the memory X to the memory Y whilst "forgetting" the intermediate memories unless you have carried out another sequence modification.

Press the MEM key or click the symbol, enter the No. of the first memory, click the "-->" symbol, enter the No. of the memory to be linked and click the "-->" symbol once again.

Examples of modification of the sequential order

- 1 Let's pass from memory 100 to memory 103 (in a memory sequence as opposite)

To obtain this result, insert the commands :

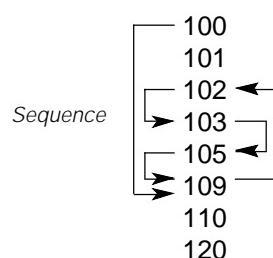


- 2 To pass from memory 100 to memory 109 then return to memory 102 , insert the commands :

Following the modified order, you enter a loop which you can exit. After the memory 109, you return to memory 102, then come back to memory 109 and so on.

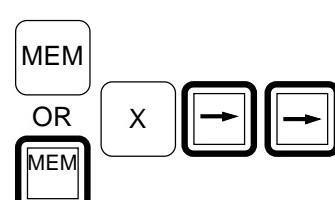
To exit from this, you have to program a key which will call up a memory outside the loop so as to take up the normal sequential sequence again after loading of this memory.

Refer to chapter 8, example No.13 for the programming of the keys or the command memories. Remark: a link can lead to a Cue Memory, to a colour memory or even to a command memory.



To cancel a link

Press the "MEM" key or click the symbol, enter the No. of the memory after which you wish to remove the modification of the sequential order and click the "-->" symbol twice.

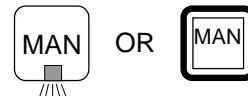


Crossfade between Cues

Manual mode, without sequential calling up of the next memory

Modes (sequential or not, manual or automatic) are kept, even if you go out from the crossfade mode.

In the present case, if necessary, press the MAN key or click the symbol to activate the manual mode (the LED of the MAN key should be lit and the symbol light up in green).



Also if necessary, press the SEQ key to deactivate the sequential mode (the LED of the SEQ key should be unlit).



Now load memory 1 in the stage playback as below



and memory 2 in the preset playback as follows

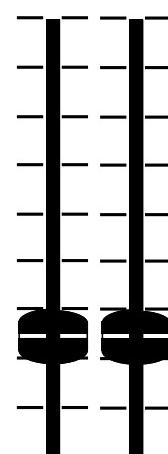


By acting on the fader of the S playback, you decrease the intensity of the channels appearing on stage, and by acting on the fader of the P playback you convey the channels of this playback on stage.

You can operate these faders separately to obtain either a transition via a black out or else a double cue on stage.

By simultaneously operating both faders, you will obtain a gradual time crossfade of your operation.

Note that, as long as you continue the operations, the crossfade will act only with the two memories which you have loaded.



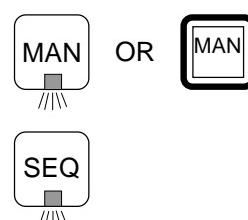
Manual mode, with sequential calling up of the next memory

Press the "SEQ" key to activate the sequential mode (the LED of the SEQ key should be lit).

You can operate these faders separately or simultaneously as described earlier to obtain either a transition via a black out or a double cue on stage or else a gradual time crossfade of your operation.

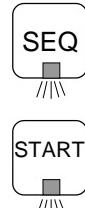
At the end of the crossfade, the memory which was in preset and which has come up progressively on stage, is automatically replaced by the next memory of the sequence.

This sequence can be that of increasing number order of any other programming which has been attributed to this sequence.



Automatic fading

Press the SEQ key to activate the sequential mode (the LED of the SEQ key should be lit).



Press the START key to start the crossfade (the LED of the START key lights up).



From this moment, the intensities coming from the stage playback are progressively replaced by the intensities coming from the preset playback, with regard being paid to the standby, up and down times allocated to each of the crossfade registers.

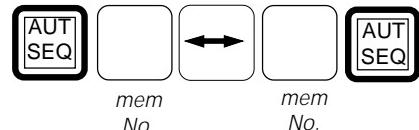
At the end of the crossfade, the memory which was in preset and which has come up progressively on stage, is automatically replaced by the next memory of the sequence.

You must press the START key again to start the next crossfade.

Series of automatic sequential crossfades

You can also envisage starting a series of automatic sequential crossfade by a single stroke of the START key.

To do this, click the "AUT SEQ" symbol (the symbol flashes), then by means of the numeric keyboard, select the first memory, press the key to establish the link, select the last memory of the series and click the "AUT SEQ" symbol once again for confirmation.



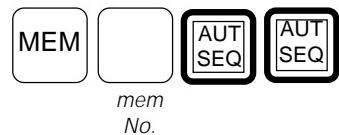
mem No. mem No.

When you press the "START" key, the crossfade will start up and be sequenced in accordance with the various standby, up and down times allocated far as the last memory selected.

The sequence of memories can be that of increasing the number order of any other programming which has been allocated to this sequence.



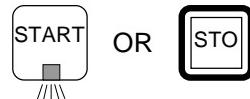
To cancel the automatic sequencing, select the memory starting from which you wish to cancel the links and click the "AUT SEQ" symbol twice.



mem No.

Momentary halt during a crossfade

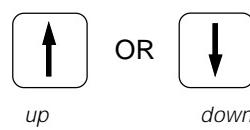
After having started an automatic crossfade, you can momentary halt it by clicking the "STO" symbol or by pressing the START key. During the halt, the LED of the START key flashes.



To restart the crossfade, you need only to press the "START" key.

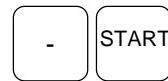
Modification of the speed of the crossfade

After having started an automatic crossfade, you can modify the speed of the crossfade by pressing the up or down key. Note that this operation is only possible for the already started crossfade. As soon as a new memory is selected, the recorded delays remain unchanged.



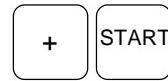
With reversal

If during the progress of the crossfade, you wish at a given instant to come back to the stage memory which existed before the start of this crossfade, press the “-” key and press the start key.



Piling (stacking-up memories)

The stacking-up of memories in the crossfade consists in a starting this cues with their recorded times, simultaneously with a crossfade in progress.



By pressing the “+” key and the “START” key, you automatically stack the memory which sequentially follows that towards which the crossfade is directed.

Thus, for all the memories which follow successively, you can therefore simultaneously in time out of the last loaded memory.

Abrupt crossfade

If you desire an abrupt crossfade, that is an instantaneous transition from the stages intensities or the preset intensities, simply click the “CUT” symbol.



Jump to the next memory

If during the progress of a crossfade, you wish, at a given instant, to convey this crossfade to the next memory, you must use the programming possibilities of your TENOR.

Refer to the programming example No. 13 of chapter 8.

Turning out the channels coming out of the crossfade register

Set the crossfade mode in "MAN."

If the 2 crossfade registers are at 100%, set the left-hand fader at 0%.



If the 2 crossfade registers are at 0 %, set the left-hand fader at 100%.

Remark on the use of times (up, down and standby times) in the crossfade registers.

When you proceed a crossfade between 2 cue memories (memory 1 and 2 for instance), the effective times are always the ones of the 2nd memory.

In this case :

- memory 1 will “go down” with the down and down standby times of the 2nd memory
- memory 2 will “go up” with the up and up standby times of the 2nd memory

Thus, the displayed times correspond to the memory loaded in the preset playback (in green).

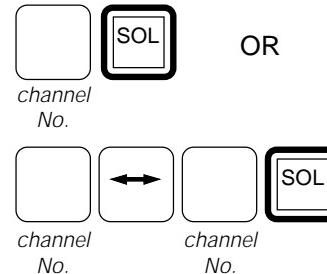
Isolating Channels

Isolating one or more selected channels

If, in a playback, you wish to isolate one or more channels so as to modify their setting, you operate as below.

Having selected the playback, you select the desired channels on the numeric keyboard (see section 2.1), then click the "SOL" symbol.

From this instant, you can allocate to them or modify their intensities.



Bringing back the isolated channels

This operation is carried out simply by clicking the "SOL" symbol once again.



Individually testing the channels of a show

In submaster mode and in crossfade mode you can individually view each channel of the show.

To do this, click the TES CHA symbol to test the first channel, then click the TES CHA once again to test the next channel and so one up to the end.



Inhibiting a Channel

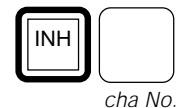
A single channel at a time and only in crossfade mode.

INHIBITING means allocating a value which will remain invariant regardless of all operations.

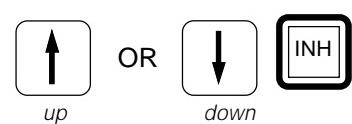
The inhibition lasts up to the instant at which you cancel it intentionally.

To inhibit

Click the INH symbol to prepare the inhibition, press the key or keys corresponding to the desired channel number.



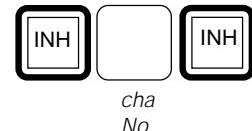
Correct the intensity of the channel by means of the up and down keys until the desired inhibition value is obtained.



Finalize the manipulation by clicking again the "INH" symbol. From this moment, a big "I" is displayed in the middle of the screen and inhibited channels are displayed in mauve (only when one of the crossfade registers is selected).

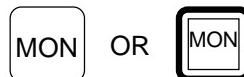
To cancel the inhibition

Click the INH symbol, give the desired channel number and click the INH symbol once again to cancel.



TENOR

STAGE OR PRESET REGISTER		MEMORY NO.	
TIMES 00,00 00,05 00,00 00,05			
1 : FF 2 : FF 3 : FF 4 : FF 5 : FF 6 : FF 7 : FF 8 : FF 9 : FF			
TO PAGE QUIT		PAGE MON	



OR



By clicking the MON symbol, you view the content of the selected playback.

The name of this playback and the number of the memory which it contains appears at the top of the screen.

On the next line, you find the standby, up and down times allocated to the playback.

Thereafter, you find the list of channels located in this playback, with their intensities.

CHANNEL 5 USED IN MEMORIES ...	
1 : FF 5 : 20 9 : FF	
PAGE QUIT	
MON CL 2 X	



OR



channel No *channel No*

If you first select a channel on the numeric keyboard, by clicking the MON symbol, you view the list of memories in which this channel is used.

USED MEMORIES	
TIMES	LINK
1	M2 00,00 00,10 00,00 00,05
2	M2 00,00 00,10 00,00 00,05
2,5	COLOUR MEMORY
3	00,00 00,10 00,00 00,05
3,5	COMMAND MEMORY
TO PAGE QUIT	
CL X 2	
PUSH PUSH	



By clicking the USE MEM symbol, you view all the already used memories.

A distinction is made between the normal memories, the command memories and the colour memories.

The table also indicates the connections (--) between memories, as well as the standby, up and down times.

USED CHANNELS	
1 : M E C	21 : M E C
2 : C	22 : E
3 : E	23 : C
4 : E	24 : C
5 : M E C	25 : M
6 : M E C	26 : M C
7 : M	27 : E C
8 : E	27 : E
9 : C	28 : M E C
TO PAGE	
PUSH	



By clicking the USE CHA symbol, you view all the already used channels.

For each channel, you will find an index showing whether this channel has already been used at least once in a memory (M), a special effect (E) or a chaser (C).

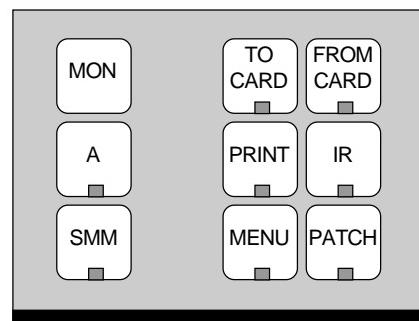
MENU Mode

Summary

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The MENU function offers the possibility of integrating sequences of functions individual to each user.
In this mode you can:

- allocate to any dimmer one of the eight programmed lighting curves (dimmer laws),
- enable or disable the 10 external lines,
- allocate a combination of at most 63 different pieces of information to external lines, keys or command memories,
- modify the action rates of the up and down keys,
- enable or disable the sound signal,
- enable or disable the continuous storage,
- adapt your TENOR in accordance with the possibilities of your colour scrollers,
- compare the contents of a card with the contents of the memories of your equipment.
- configurate your TENOR to work with "MIDI" peripherals.
- program potentiometer 24 to be used as :
 - either fader for submaster 24
 - either master fader for all submasters
- enable or disable the DMX512 input
- configurate your system if it consists of 2 synchronised TENORs.



KEYBOARD FOR ACCESS TO MENU MODE

MENU SCREENS

To enter this working mode, use the MENU key on the desk.

Then enter the desired heading number and refer to the following pages to continue your work.

MENU 1	DESK	V 5.4 240 M
- ASSIGNING A DIMMER LAW	1	
- ENABLING OR DISABLING EXTERNAL LINES	2	
- PROGRAMMING KEYS	3	
- PROGRAMMING EXTERNAL LINES	4	
- PROGRAMMING MEMORIES	5	
- MODIFYING SPEED OF KEYS	6	
- ENABLING OR DISABLING BEEP	7	
- ENABLING OR DISABLING CONTINUOUS LIBRARY STORAGE	8	
- PROGRAMMING COLOUR FILTERS	9	
- QUIT	CL X 2	
- MENU 2	PAGE	

MENU 2	DESK
- COMPARE CARD WITH MEMORY	1
- MIDI	2
- PROGRAM FADER 24	3
- ENABLE/DISABLE DMX512 INPUT	4
- CONFIGURATION OF A DOUBLE-TENOR SYSTEM	5
- QUIT	MODE CL X 2
- MENU 1	PAGE

All the operations necessary to use these screens are performed from the desk.

To pass from menu 1 to menu 2 or vice versa, use the PAGE key.

To exit from this mode, press the CL key twice or press a key corresponding to another working mode.

MENU 1.1

Allocation of lighting curves to the dimmers (dimmer laws)

When you select heading 1 in the menu mode, the screen displays a series of the first 15 dimmers with their allocated curves.

By using the PAGE key, you will see the dimmers, always in consecutive series of 15.

If you wish to modify the lighting curve of a dimmer, you need only enter the number of this dimmer by means of the numeric keyboard.

On first pressing on this keyboard, the screen displays the list of preprogrammed curves, if necessary finish entering the number of the chosen dimmer, press the % key and enter the number of the desired curve.

Once this operation is completed, the screen again displays the list of dimmers.

You can also select a series of dimmers (see chapter 2) and allocate them a common curve.

To reset all the dimmers to the initial state (linear curve), select them all and give them the 0 curve.

Allocation of lighting curves to a dimmer

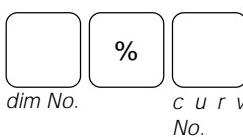
Allocation of lighting curves to a series of dimmers

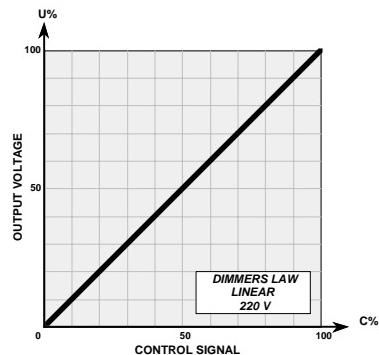
ASSIGNED DIMMER LAWS		
DIMMER	LAW	No
1	LINEAR	0
2	LINEAR	0
3	LINEAR	0
4	LINEAR	0
5	LINEAR	0
6	LINEAR	0
7	LINEAR	0
8	LINEAR	0
9	LINEAR	0
10	LINEAR	0
11	LINEAR	0
12	LINEAR	0
13	LINEAR	0
14	LINEAR	0
15	LINEAR	0

TO PAGE PAGE
 TO ASSIGN: SELECT DIMMER DK
 - QUIT MODE CL X 2

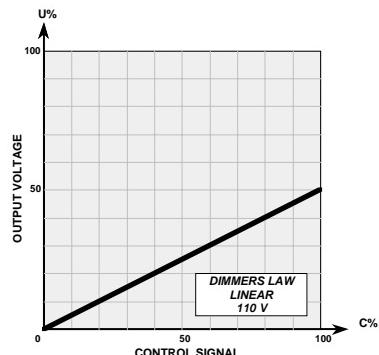
POSSIBLE CURVES

- 0 - LINEAR
- 1 - 120 V
- 2 - FLUO
- 3 - PRE-HEAT
- 4 - SQUARE LAW
- 5 - TV 1
- 6 - TV 2
- 7 -
- 8 -
- 9 - ON / OFF

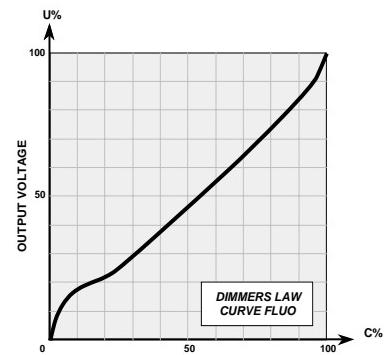




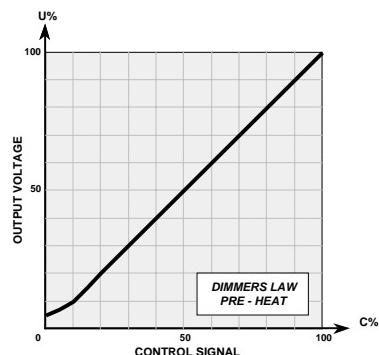
Curve 0



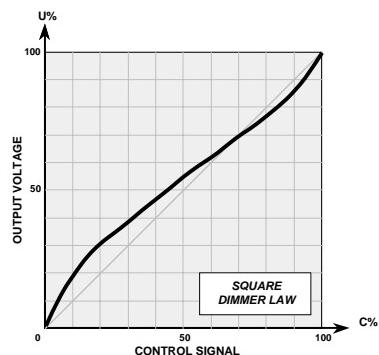
Curve 1



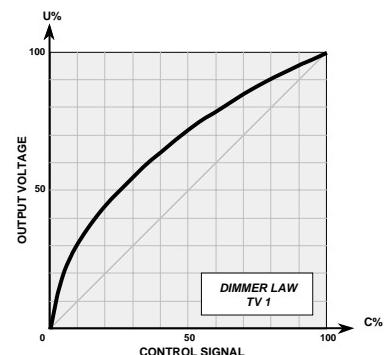
Curve 2



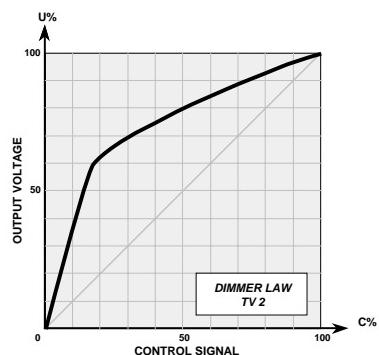
Curve 3



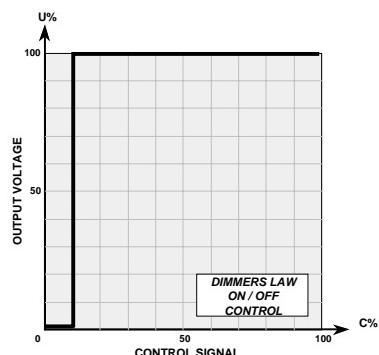
Curve 4



Curve 5



Curve 6



Curve 9

MENU 1.2

Enabling or disabling the external lines

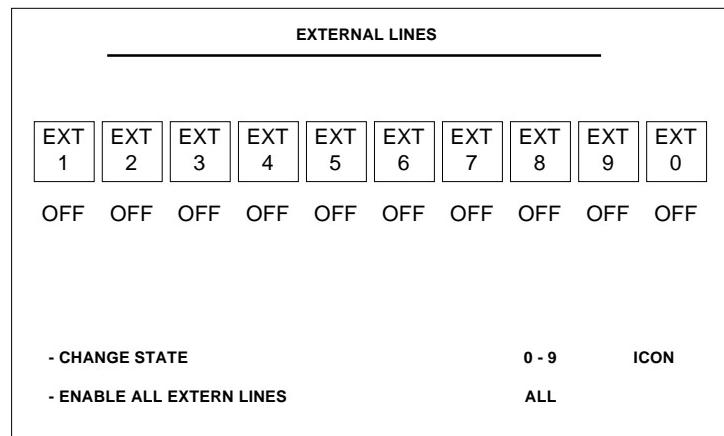
Select the heading 2 in the MENU mode.

By default all the external lines are disabled; to enable the desired line or lines, click the corresponding symbol or symbols or enter their number via the numeric keyboard.

The OFF sign disappears and the ON sign appears under the symbol of the enabled lines.

To disable again a line, you need only click on its symbol again.

To enable all the lines, enter "ALL".



Programming

Your TENOR allows you to store various complex operations with a view to instantaneous loading during a show. You may also personally modify certain operating modes according to your interest.

You can also introduce standby times in the programmations.

IMPORTANT

The "MENU", "CL" as well as the "0" to "9" keys are not programmable.

Programming Mode

The programming mode of the TENOR allows allocation of a combination of at most 63 different functions (steps) to an external line, a key or a command memory.

Note that one of these steps, but one only, may be a key or an external line already programmed.

In the following pages, you will find the representation of the screens in which you can program, as well as some examples of practical cases of programming.

Below you will find the explanation of the operations necessary to use these headings.

MENU 1.3

PROGRAMMING A KEY

To enter this heading, press the MENU and 3 keys



Then, select the key which you wish to program by pressing it. If the key is already programmed, it appears in the lower part of the screen.. You can nevertheless continue the procedure for viewing or possibly modifying the contents.

To enter the first programming screen, press the key



To cancel the programming of a key, press the key twice



To cancel all the key programmings, press the key 5 times.



MENU 1.4

Programming an external Line

To enter this heading, press the MENU and 4 keys



Then, select the line which you wish to program, by pressing its number.

If the line is already programmed, it appears in the lowerpart of the screen.. You can nevertheless continue the procedure for viewing or possibly modifying the contents.

To enter the first programming screen, press the key



To cancel the programming of a line, press the key twice



To cancel all the line programmings, press the key 5 times.



MENU 1.5

Programming a Memory

To enter this heading, press the MENU and 5 keys



Then, select the memory which you wish to program by pressing its number.

If the memory is already programmed, it appears in the lowerpart of the screen.. You can nevertheless continue the procedure for viewing or possibly modifying the contents.

To enter the first programming screen, press the key



To cancel one command memory, press the key twice



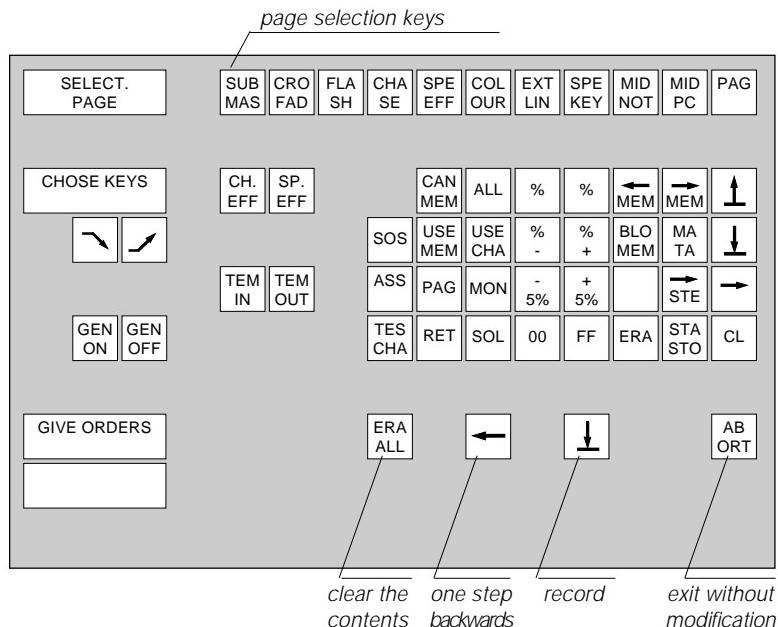
To cancel all the command memories, press the key 5 times.



Programming Screens

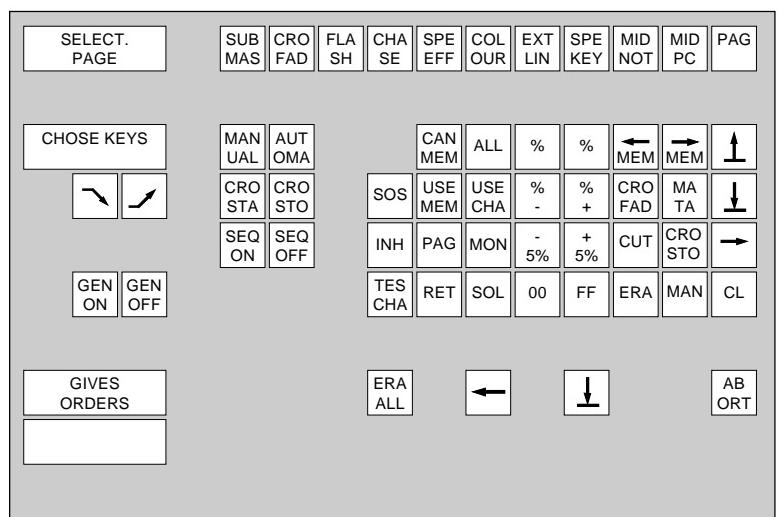
Once you have carried out the operations to effect a programming, your screen will show you this working zone where you will see displayed the various programming steps which you will insert either via the mouse or via the desk according to the desired function. Note that the first screen is displayed in submaster mode.

- GEN - ON : set the ON - OFF key
ON (lights up)
- GEN - OFF : set the ON - OFF key
OFF (out)
- TEM - IN : set the following submaster in automatic mode (click "TEM IN", then press desired submaster selection key)
- TEM - OUT : set the following submaster in manual mode (click "TEM OUT", then press desired submaster selection key)



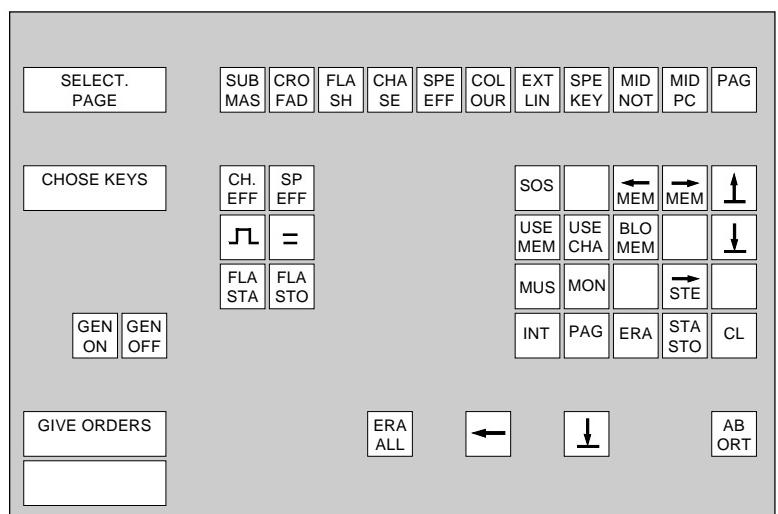
Once you have clicked the "CRO FAD" symbol your screen displays the crossfade zone

- MANUAL : set the crossfade in manual mode (MAN lights up)
- AUTOMA : set the crossfade in automatic mode (MAN out)
- CRO STA: start the crossfade (STA lights up)
- CRO STO: stop the crossfade (STA out or blinking)
- SEQ ON: set the crossfade in sequential mode (SEQ lights up)
- SEQ OFF: set the crossfade in non sequential mode (SEQ out)



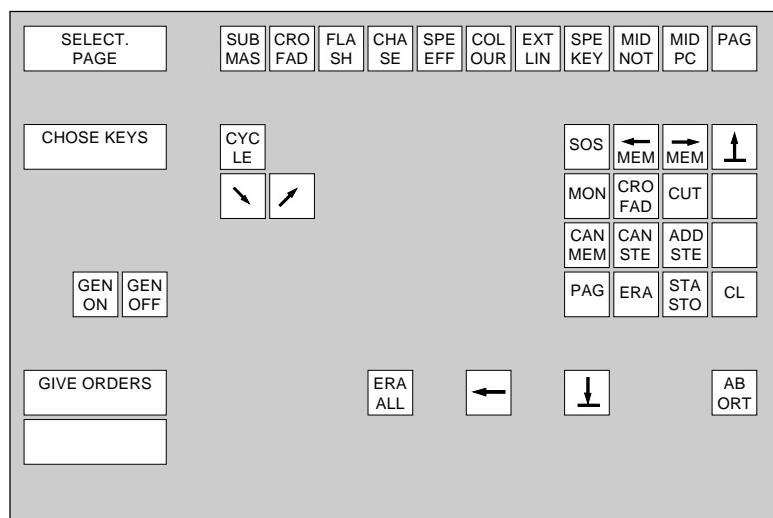
Once you have clicked the "FLASH" symbol your screen displays this working zone

- FLASH : set all the flash submasters in flash mode (FLASH blinking)
- = : set all the flash submasters in ON-OFF mode (= lights up)
- FLA STA : start the effect (press desired flash key, and then click "FLA STA")
- FLA STO : stop the effect (press desired flash key, and then click "FLA STO")

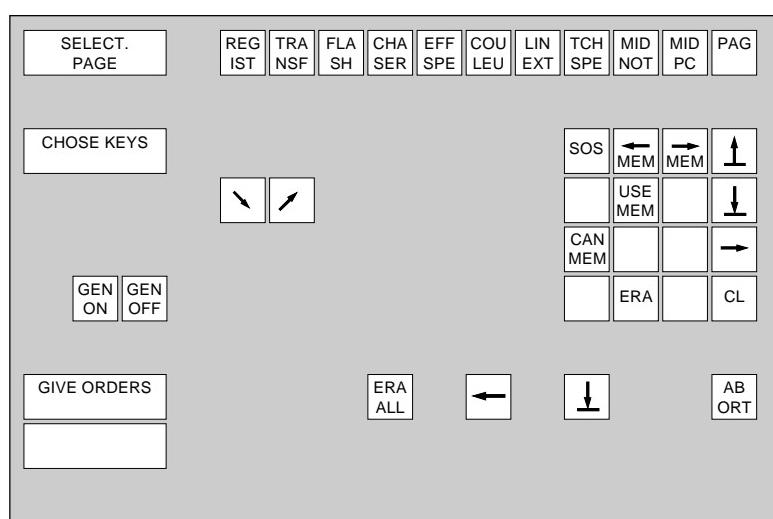


Programming Screens

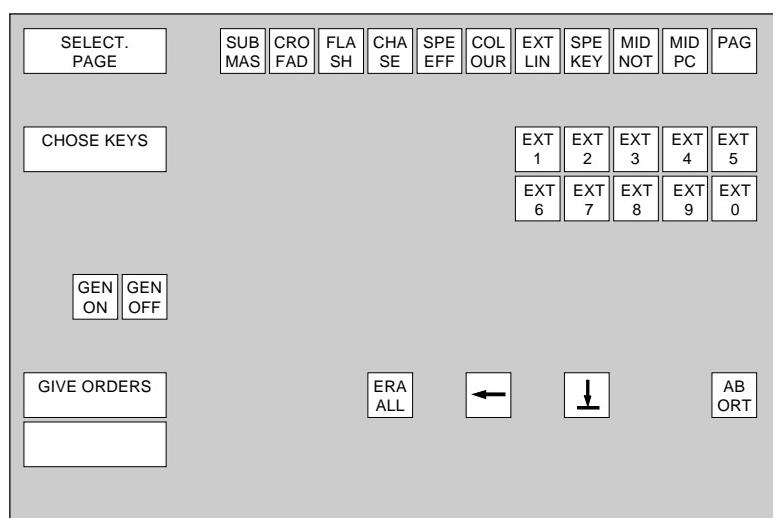
Once you have clicked the "CHASE " or "SPE EFF" symbol your screen displays this working zone



Once you have clicked the "COLOUR" symbol your screen displays this working zone



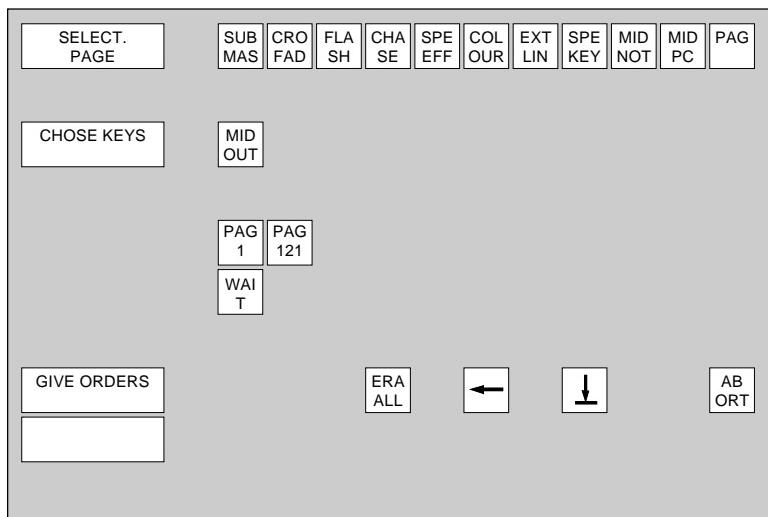
Once you have clicked the "EXT LIN" symbol your screen displays the "external lines" working zone



Programming Screens

Once you have clicked the "SPE KEY" symbol your screen displays the "special keys" working zone

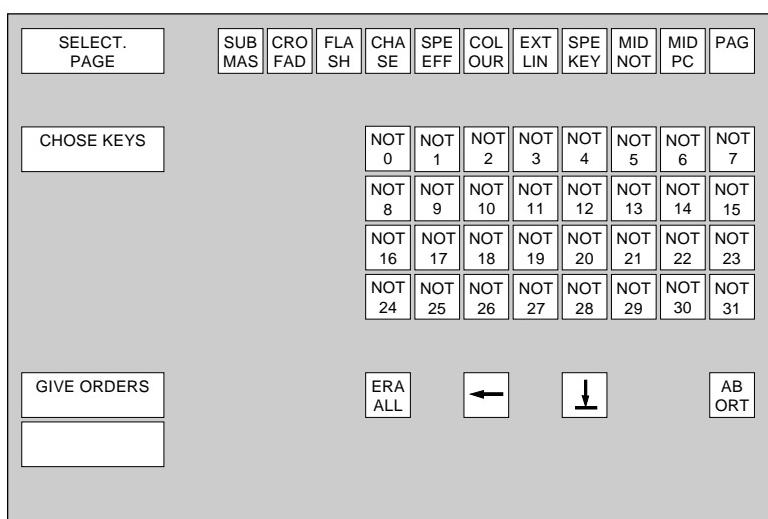
- MID OUT : allows the TENOR to send MIDI messages
- PAG 1: selecting the page with channels 1 to 120
- PAG 121: selecting the page with channels 121 to 240
- WAIT : allows to introduce a standby time (see paragraph "standby times in the programming)



Once you have clicked the "MID NOT" symbol your screen displays this working zone.

This allows to introduce the contents of MIDI notes in the programmation.

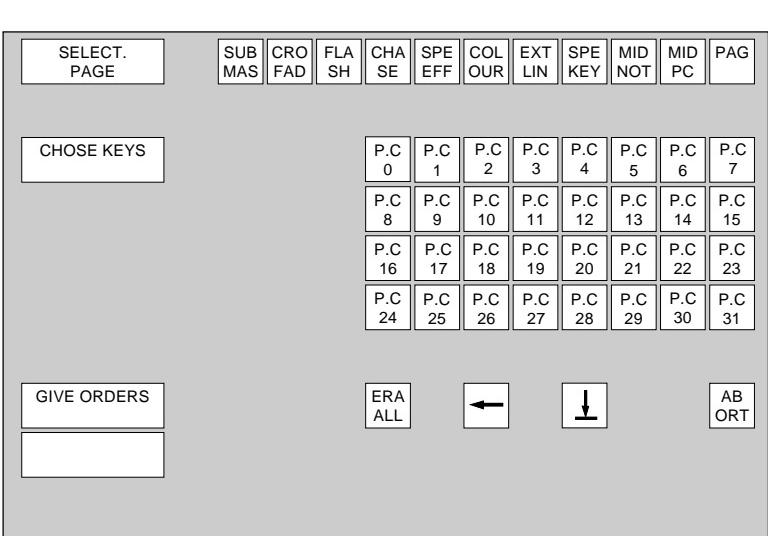
- PAG : select the page with the following notes



Once you have clicked the "MID PC" symbol your screen displays this working zone

This allows to introduce the contents of MIDI "PROGRAM CHANGES" in the programmations.

- PAG : select the page with the following "PROGRAM CHANGES"



Examples of Programming a Key, a Memory or an external Line

In the few examples which follow, you will find some practical cases of the use of the programming functions which your TENOR offers.

You can program either a key or a command memory; the method is practically the same but the use is slightly different.

In the case of a memory, when you insert it into your sequence, the commands which you have programmed into it will be sent at the right moment by your crossfade module.

In the case where no crossfade is in progress, pressing the START key will carry out the operation.

In the case where a crossfade is in progress, you need only press the "+" key before the START key for the programmed operation to simply be superimposed on the crossfade without affecting it.

REMARK:

In the key programming mode, you can never use a key in its own programming (program the key "D" to call key D).

For specific cases, if this operation is absolutely necessary, you have to transfer the function of the key in an other free key and use this last in the programming.

LIST OF EXAMPLES

- Case No. 1: By the mere stroke of a key, calling up, loading and starting an effect in a submaster and a few seconds after this stroke, initiating a crossfade.
- Case No. 2 : Calling up, loading and starting an effect in the flash submasters at a given moment of the sequence.
- Case No. 3 : Effects are actively running in flash submasters and you want to stop them at a given moment in the sequence.
- Case No. 4 : Calling up and loading a series of fully specified memories (which are not in a sequential order) into a sequence of, also specified, submasters.
- Case No. 5 : Loading a series of memories in sequence into a series of submasters.
- Case No. 6 : Transforming the function of the flash submaster keys into submaster flash keys.
- Case No. 7 : Erasing a series of flash submasters.
- Case No. 8 : Successively viewing the contents of all your memories.
- Case No. 9 : Automatically reading your memory card at the end of the list, in the case when your initial card would have insufficient capacity.
- Case No. 10 : In a single key stroke, instantaneously replacing a defective dimmer with its spotlights, by another which has been previously placed in reserve.
- Case No. 11: While a crossfade is running, you wish at a given moment to superimpose the progressive raising of a specific memory in a submaster up to a certain fixed percentage and, simultaneously, another memory in another submaster.
- Case No. 12 : While a crossfade is running, you wish at a given moment to jump to the next memory in the sequence .
- Case No. 13: Creation of a loop memory.
- Case No. 14: Creation of a key to leave the loop.

Remark:

All these examples are also usable for the "MIDI NOTES" and "PROGRAM CHANGES" programming .

TENOR

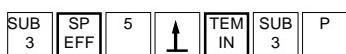
Case No.1 :

By the mere stroke of a key, calling up, loading and starting an effect in a submaster and a few seconds after this stroke, initiating a crossfade :

Example :

You are in crossfade mode ("P" selected), memory No. 5 in on stage and you want to change to memory 6 , 5 sec. after having initiated the effect No. 5 in the submaster 3.

To do this, you program the command memory (menu No. 5) under a free No. between Nos. 5 and 6, i.e. 5.5 with the following commands:



Press a key

Click a symbol

submaster key

and in memory No. 6 you place standby times of 5 seconds.

By pressing "START" you will obtain the desired result.

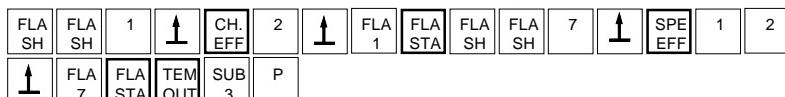
You would obtain an identical result if you had programmed the same thing into a key.

Case No.2 :

Calling up, loading, starting and stopping effects in the flash submasters at a given moment of the sequence.

You are in crossfade mode ("P" selected) and let us assume that at a given moment, during the crossfade of memory No. 7 to memory No. 8 which should last 20 seconds, the chaser set up under No. 2 must be initiated in the flash submaster No. 1, the special effect No. 12 must be initiated in the flash submaster No. 7 and the effect No. 5 which is operating in the submaster No. 3 must be stopped.

To do this, you program the command memory (menu No. 5) under a free No. after No. 8 i.e. No. 8.5 with the following commands:



Press a key

Click a symbol

Flash key

Note that if you have not carried out this operation whilst the crossfade was in progress, by pressing "START" you will effect the operation.

Case No. 3 :

Effects are actively running in flash submasters and you want to stop them at a given moment in the sequence.

Following example No. 2 above, you want to stop the effect No. 2 which is operating in the flash submaster No. 1.

You program the command memory simply with the "Flash 1" key and the "FLA STA" symbol and in another command memory you program the "Flash 7" key and the "FLA STO" symbol to stop the No. 12 effect which was running.

Cas n° 4 :

Calling up and loading a series of fully specified memories (which are not in a sequential order) into a sequence of, also specified, submasters.

Example :

Memory 10 being on stage, you want to automatically load memory 100 into submaster 6, memory 4 into submaster 7, memory 8 into submaster 8, memory 300 into submaster 14, memory 9 into submaster 15 and memory 200 into submaster 16.

To do this, you will program the command memory (menu No. 5) under a free number after 10, for example 10.5, with the following commands:

SUB 6	MEM	1	0	0		SUB 7	MEM	4		SUB 8	MEM	8		SUB 14
MEM	3	0	0		SUB 15	MEM	9		SUB 16	MEM	2	0	0	
S														

- Press a key
- Click a symbol
- Submaster key

Press the "S" key if you want to return to "STAGE" crossfade mode.

Case No. 5 :

Loading a series of memories in sequence into a series of submasters.

Example :

The memories from 751 to 755 into the submasters 13 to 17.

To do this, you program the key or the memory with the following commands:

BLO MEM	SUB 13		SUB 17	MEM	7	5	1	BLO MEM	S
------------	-----------	--	-----------	-----	---	---	---	------------	---

- Press a key
- Click a symbol
- Submaster key

Press the "S" key if you want to remain or come back to "stage" crossfade mode.

Case No. 6 :

Transforming the function of the flash submaster keys into submaster flash keys.

Example :

The flash keys 1 to 5 act on the submasters from 13 to 17.

We assume that the memories 0.1 to 0.5 are free.

By programming, you enter the following commands:

SUB 13	MEM	•	1		SUB 14	MEM	•	2		SUB 15	MEM	•	3	
SUB 16	MEM	•	4		SUB 17	MEM	•	5		FLA SH	FLA SH	1		5
+	BLO MEM	MEM	•	1	BLO MEM	SUB 13	CAN MEM	CAN MEM	SUB 14	CAN MEM	CAN MEM	SUB 15	CAN MEM	CAN MEM
SUB 16	CAN MEM	CAN MEM	SUB 17	CAN MEM	CAN MEM									

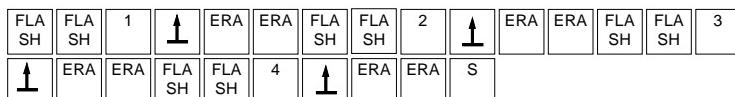
- Press a key
- Click a symbol
- Submaster key

TENOR

Case No. 7 :

Erasing a series of flash submasters.

Example :



Press a key

Following case 6 above, erase the flash submasters from 1 to 4.

You enter the following commands:

Case No. 8 :

Successively viewing the contents of all your memories.

You program a key with:



Press a key

Click a symbol

In a submaster or a crossfade register, you load the first memory and then you successively press your programmed key.

If you do this operation in the stage playback or in a submaster with its lever at 100, you simultaneously send your memories on stage. However, there are certain restrictions if your memory list includes colour memories or certain command memories.

With the operation in the preset playback (P) there is no restriction, but the viewing is blind.

Case No. 9 :

Automatically reading your memory card at the end of the list, in the case where your initial card would have insufficient capacity.

You enter the following commands in your last memory.



Press a key

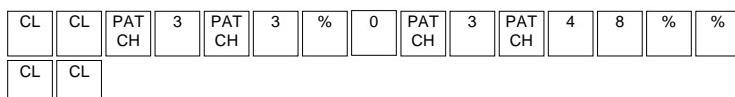
Case No. 10 :

In a single keystroke instantaneously replacing a defective dimmer with its spotlight, by another which has been previously placed in reserve.

Example :

Channel No. 3 is crucial to your show, it controls dimmer No. 3 and you have set dimmer No. 48 as back up.

You program an available key as follows:



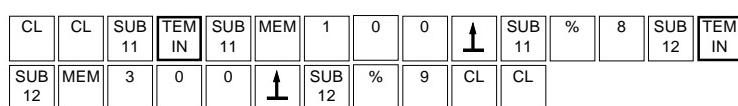
Press a key

Cas n° 11 :

While a crossfade is running, you wish at a given moment to superimpose the progressive taking up of a specific memory in a submaster to a certain fixed percentage and, simultaneously, another memory in another submaster.

Example :

During the crossfade of memory 609 to 610, lasting 25 seconds, memory No. 100 must go up progressively to 80 % in submaster No. 11, and memory No. 300 must go up progressively to 90 % in submaster 12.
You program as follows: (memory 610.5 or key)



- Press a key
- Click a symbol
- Submaster key

Case No. 12 :

During a crossfade, you want at a given moment to jump to the next memory in the sequence.

You program a key as follows:



- Press a key
- Click a symbol

Case No. 13 :

If you want to create a loop memory which consists in initiating by a single operation, a series of successive crossfades between a series of memories in sequence and, having arrived at the last, returning to the first automatically.

i.e. a loop from memory 8 to memory 12.

You put the crossfade in automatic sequence (see chapter 8) and you program memory 12.5 (following memory 12 in the sequence) as follows:

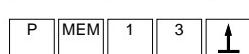


- Press a key

Case No. 14 :

When a loop is sent, it will turn undefinitely except if you decide to leave it. To do this, program a key which calls up a memory outside the loop.

In the case of the example, you program a key which calls memory 13 (following memory 12.5 in the sequence)



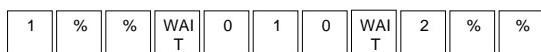
- Press a key

Standby Times in the Programming

You can also introduce standby times in the programming (softkeys, external lines, memories or MIDI).

To do this, you simply add in de key sequence:

"WAIT" - time in seconds - "WAIT"
(the "WAIT" symbol is accessible on the "SPE KEY" screen)



Example

program key "A" with::

When pressing the "A" key:" :

- channel 1 is set automatically at 100 %
- channel 2 is set at 100 % after 10 sec.

Remarks :

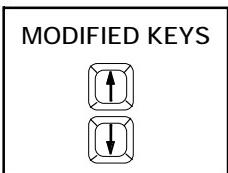
- You can introduce several successive standby times in a same programmation.
- The standby time is active only at the first level.
For example, if a standby time is introduced in key B which is introduced in key A, when executing key A, this time is ignored.
- When a standby time is in progress (for example, if you started a softkey with standby time and this time is not yet finished), all functions of the desk are accessible.
However, you can not start a second standby time.
If this is the case, the desk gives the message "MAX. ONE WAIT TIME RUNNING" and the key sequence following this time, will not be executed.

TENOR

MENU 1.6

Modifying the Rate of the up & down Keys

By clicking the corresponding symbols, you can modify the rate of the response time and the rate of action of the up and down keys for allocating the channels intensities, the attenuation times or the cycle duration times.



MODIFYING "SPEED" OF KEYS			MOUSE		
FOR	SEC	INC	DEC		
CHANNEL INTENSITY	* DELAY 0.024	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
	* ACTION 0.216	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
FADE TIME	* DELAY 0.672	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
	* ACTION 0.336	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
CYCLE DURATION	* DELAY 0.024	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
	* ACTION 0.288	<input type="button" value="↑"/>	<input type="button" value="↓"/>		
- QUIT; ON DESK:			MODE CL 2X		

MENU 1.7

Enabling or disabling the Beep

By clicking the central symbol, you enable or disable the sound signal, an ON or OFF sign appears on the screen.

BEEP MODE	
PROGRAMMING	
<input type="button" value="BEEP"/>	ON
PUSH 'BEEP' IF YOU WANT OR DON'T WANT THE BEEP	
- QUIT	CL 2X MODE

MENU 1.8

Enabling or disabling the continuous Storage

By clicking the central symbol, you enable or disable the continuous storage, an ON or OFF sign appears on the screen.

PROGRAMMING CONTINUOUS LIBRARY STORAGE	
<input type="button" value="CONT.
STOR."/>	OFF

MENU 1.9

Allocation of the colour Scrollers

On this screen, you can program your TENOR depending on the possibilities of your colour scrollers.

Firstly, click in the "CHANNEL" column opposite the number of the scroller to which you wish to allocate a channel.

Then, with the help of the desk up and down keys, you increase or decrease the value of this number until it corresponds to that of the channel to which you are allocating this scroller. This instruction is interactive with the colour mode screen.

Then click the figures in the "first" column and still with the help of the same up/down keys, you accurately position the first colour..

This operation is carried out in real time and you see the result of your operations on stage.

Proceed in the same way to position the last colour of the scroller, after having clicked its figures in the "LAST" column.

Finally, in the "NUMBER" column, you indicate the number of colours which your scroller contains.

Note that by default, the number is 11 colours and that the maximum possible is 24 colours.

Repeat these operations for all colour scrollers.

COLOUR CHANGER					
CHANNEL	CHANGER	FIRST	COL.	LAST	NUMBER
1	1	00		FF	11
2	2	00		FF	11
3	3	00		FF	11
4	4	00		FF	11
5	5	00		FF	11
6	6	00		FF	11
7	7	00		FF	11
8	8	00		FF	11
9	9	00		FF	11
10	10	00		FF	11
11	11	00		FF	11
12	12	00		FF	11
13	13	00		FF	11
14	14	00		FF	11
15	15	00		FF	11
16	16	00		FF	11
17	17	00		FF	11
18	18	00		FF	11
19	19	00		FF	11

- QUIT
- PAGE

MODE
PAGE

CL X 2

ACTIVE KEYS



up



down

MENU 2.1

Compare the Contents of the Card with the Contents of the Memory of the Tenor

As soon as you have selected this page, the TENOR gives the result of the comparison.

COMPARE CARD / MEMORY

MENU 2.2

Programming the MIDI Mode

See "MIDI" chapter.

MIDI	DESK
- CHANGE CONFIGURATION	1
- PROGRAMMING NOTES	2
- PROGRAMMING PROGRAM CHANGES	3
- PROGRAMMING CONTROL CHANGES	4
QUIT	MODE CL X 2

MENU 2.3

Program Fader 24

Normally, fader 24 controls submaster 24.

By entering "1" on the keyboard, you can transform this fader to "GENERAL" for all the submasters.

In this case, submaster 24 is unusable and the "24" symbol appears in the different submaster pages.

To return to the initial situation, enter "0".

PROGRAM FADER 24:	DESK
FADER 24 IS DRIVING: SUBMASTER 24	
* CHANGE TO SUBMASTER 24	0
* CHANGE TO GENERAL SUB.	1
QUIT	MODE CL X 2

MENU 2.4

Enabling or disabling the DMX512 Input

You can:

- disable the DMX512 input by entering "0"
- enable the DMX512 input by entering "1"

Note that the informations from the DMX512 input are added to the contents of the desk (the highest takes precedence) just before the patch. These informations are considered as channel intensities (and not as dimmer intensities).

Furthermore, these values are not influenced by the general fader, nor by the ON/OFF key.

Remark:

- If no more DMX512 input values are received, the last values are kept indefinitely, even if the desk is turned OFF and set ON again.
- On the other hand, if the DMX512 input is turned OFF (by entering "0"), these values are erased.

DMX 512 INPUT	DESK
DMX 512 INPUT	ON
- SET OFF	0
- SET ON	1
- QUIT	MODE CL X 2

MENU 2.5

Configuration OF A DOUBLE TENOR SYSTEM

See chapter 14 (MIDI).

CONFIGURATION OF A DOUBLE TENOR SYSTEM

TENOR A + TENOR B

TO CHANGE





PATCH Mode

Summary

Foreword 121

allocation of dimmers to a channel

- Connecting a dimmer to a channel 122
- Connecting a series of dimmers to a channel 122

Foreword

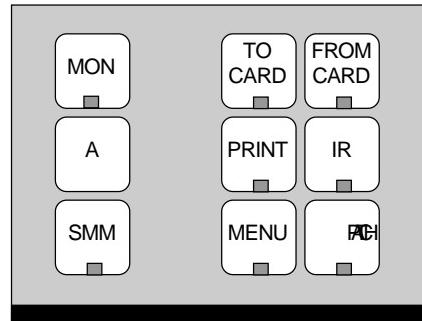
Your TENOR intended for 120 or 240 channels can control up to 512 dimmers.

Creating a patch means that you connect up an arbitrary number of dimmers to any channel, the connection factor operating by tens of percent, individually per dimmer.

The action of connecting a dimmer to a channel automatically disconnects it from the channel to which it was previously connected.

To enter this working mode, use the «PATCH» key of the desk .

When you select the patch mode, the screen displays the sequence of operations possible in this mode.



KEYBOARD FOR ACCESS TO THE PATCH MODE

PATCH		
CHANNEL	DIMMER	%
1	1	100
2	2	100
3	3	100
4	4	100
5	5	100
6	6	100
7	7	100
8	8	100
9	9	100
10	10	100
11	11	100
12	12	100
13	13	100
14	14	100
15	15	100
16	16	100
17	17	100
TO CHANGE MODE		PATCH
TO PATCH ON A CHANNEL		DK
TO PAGE		PAGE
QUIT		MODE OR CL 2 X

By using the «PAGE» key, you will see a series of the first 17 dimmers connected to the first few channels in increasing channel's number .

The initial PATCH is that for which dimmer 1 is connected at 100 % to channel 1 and so on for 240 channels.

By using the «PAGE» key once again, you will see the series of the next 17 dimmers.

By using the "PATCH" key once again, you will see the same information but selected following the dimmer's number.

To reset the PATCH to the initial state, press the « RET » key five times.

RET 5 x

To disconnect all the dimmers, press the « ALL » key five times.

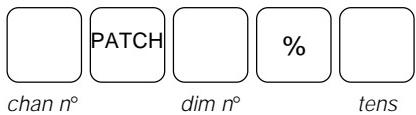
ALL 5 x

Allocation of dimmers to a channel

You can select only one channel at a time, but you can connect up to this channel any number of dimmers with the same percentage and any other number with other percentages

Connecting a Dimmer to a Channel

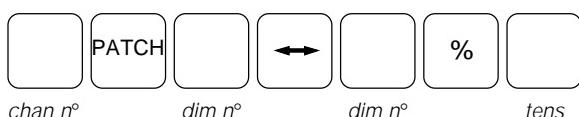
Enter the number of the desired channel, press the "PATCH" key, enter the dimmer number, prepare the proportion by pressing the «%» key and give the value of the connection factor in tens of % (one numeric key).



Connecting a Series of Dimmers to a Channel

Enter the number of the desired channel, press the "PATCH" key, enter the number of the first dimmer press the double arrow key, enter the number of the last dimmer desired, prepare the proportion by pressing the «%» key and give the value of the connection factor in tens of % (one numeric key).

To select dimmers, you can also use a combination of the «+» and «-» keys, as described in chapter 2.



All these operations are performed at the desk.

After having inserted the connection factor, the screen displays the patch list with, at first line, the information which you have just inserted.

To continue the patch, enter the number of the next channel and you will come back to the screen indicating the operations.

Library Storage

Summary

foreword 125

record 126

retrieve 126

Foreword

Your TENOR can store (record) on a memory card the contents of all the memories (channels, intensities and times, colour memories and command memories), of the chasers, of the special effects, of the patch, of the curves, of the key or external line programmings and MIDI programmings.

You can of course load back (retrieve) all these informations.

By operator choice, your TENOR can be in continuous automatic record mode for any storage operation.

Refer to chapter 8, menu 1.8, to use this fonction.

After each record or retrieve operation, you can compare the contents of a card and of the memories of the desk, refer to the chapter 8, MENU 2.1, to use this fonction.

To enter this working mode, use the «TO CARD» or «FROM CARD» keys of the desk .

Remarks :

- A card stored on a CANTOR desk or an E28 desk can be loaded by the TENOR, and conversely a card stored on a TENOR can be loaded by the CANTOR or E28 desk (except of course the non-existent informations in these desks or the excess channels).

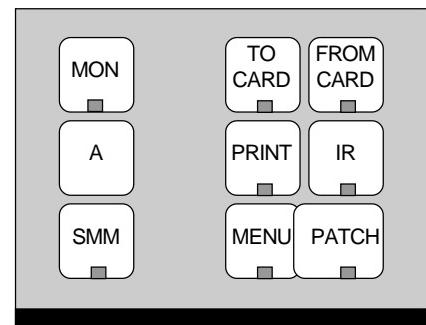
Example :

Loading of a card from a CANTOR :

- MIDI programmings, key and external line programmings are lost
- the message " DISCORDANCE FOR THE PACH OR DIMMER LAWS", is displayed, because there are not any dimmer laws in the CANTOR desk.

Loading of a card from an E28 :

- the message " DISCORDANCE FOR THE PACH OR DIMMER LAWS", is displayed , because there are not any patch in the E28 desk.
- With a TENOR 3.5 version , don't use a card stored on a TENOR 3.1 version, there can be incoherence possibility.



KEYBOARD FOR ACCESS TO THE ARCHIVE MODE

NOTE

The memory cards are protected by a battery of average service life of three years, guaranteed by the supplier; we advice you to note the start of service dates on your cards and to regularly check them.

For important shows, we advice you also to use a second card as backup.

If you use regularly your cards, The TENOR advice you that the battery level has a critical value.

From that time you can :

- load the card informations into the TENOR
- change the battery of the card
- store back the informations on the card

ADB can supply these memory cards under reference : CSC.xxx-S-04

with xxx = 064 for a 64K card
 128 for a 128K card

TENOR

record

To select the record mode, press the «TO CARD» key .



If the card is already occupied, a "CARD NOT EMPTY" message appears on the screen.

To record, press to the «TO CARD» key three times.



If a "MEMORY PROTECTED" message appears on the screen, your card is in write protect mode.

Use the card switch to remove this protection.

At the end of the recording, the "STORAGE ON CARD COMPLETED" message appears on the screen and the TENOR compares automatically the contents of the card and of the memories of the desk.

If there is any difference, use another card.

Retrieve

To select the retrieve mode, press the «FROM CARD» key and the screen displays a sequence of headings which you select to prepare your retrieval



LIBRARY STORAGE	DESK
RETRIEVAL	
SELECT ITEMS	
MEMORIES (CUE, COLOR AND CONTROL)	
1	YES
CHASES	YES
SPECIAL EFFECTS	YES
DIMMER LAW ASSIGNMENTS AND PATCHES	YES
PROGRAMMED KEYS, EXTERNAL LINES, MIDI	YES
RETRIEVAL	
FR CARD 3X	
QUIT	
MODE OR CL 2 X	

By pressing the key corresponding to the desired item number, you will specify the memory zones of the card which you are going to retrieve.

When a heading is matched by a «NO» symbol, the content of this zone of the desk will not be modified during the retrieval.



item n°

During a reinitialisation of the desk, by default, all the heading are in the retrieve possible position (YES symbol).

To retrieve, press the « FROM CARD» key three times.

At the end of the retrieval, the "COMPLETED RETRIEVAL" message appears on the screen, and the TENOR compares automatically the contents of the card and of the memories of the desk.



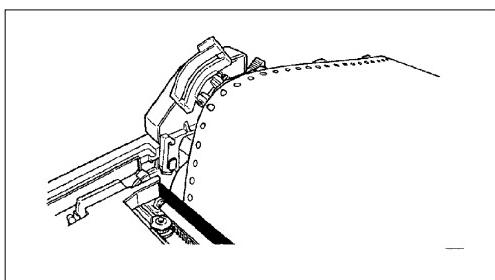
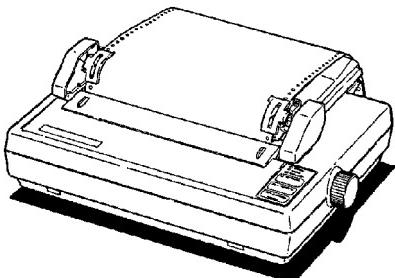
Printer Mode

Summary

Foreword	129
Print Mode	129
Printer Selections	130
Printer Specifications	131
Interconnection Cable	132

Foreword

Your TENOR possesses software making it possible to obtain clear printing of the information which it contains; you simply need to attach a printer to it.



The printer which you can obtain from ADB has been chosen to provide you with the best result.

It can serve you in other uses, you need only consult its instructions.

However, to avoid your losing time, this printer has been prepared by our staff and we advise you not to touch anything other than that which we mention below

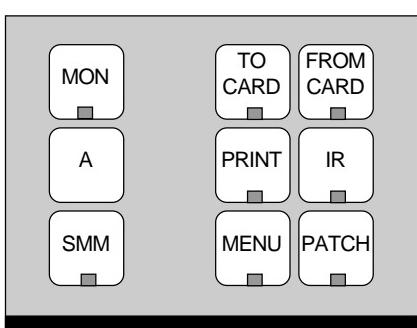
You set your printer going via the switch situated to the left. The POWER, READY and ON/OFF LINE indicators should be lit, if not press the ON/OFF LINE key.

Use conventional 243 mm paper with lateral perforations. To position it, firstly open the cover at the front of the printer, then push the paper by hand towards the back, under the roller. When it appears in front of the roller, pull it by hand and, after having lifted the two clasps of the toothed wheels, attach it to these wheels, lower the clasps and advance the paper by means of the drive button until the moment when the sheet arrives at the upper level of the chassis.

Close the cover again and the machine is ready for printing. If, after a test, you observe that the print is not correctly centered on the paper, for example to provide you with the greatest possible space to the left in order to perforate the paper for filing, it is possible for you to move the toothed wheels sideways on unlocking them by forward rotation of the small grey levers fixed to these wheels.

Having finished all these adjustments, you can print.

Print Mode



KEYBOARD FOR ACCESS TO THE PRINT MODE

PRINTING

* ALL THE MEMORIES	1
* ONE MEMORY	2
* A SERIES OF MEMORIES	3
* THE LIST OF MEMORIES	4
* ALL CHASES	5
* ONLY ONE CHASE	6
* A SERIES OF CHASES	7
* ALL SPECIAL EFFECTS	8
* A SERIES OF EFFECTS	9
* THE PATCH	0

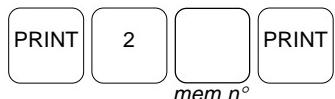
QUIT

MODE OU CL 2 X

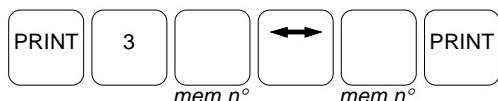
Printer Selections



To print all the memories, press the «1» key and then press the «PRINT» key.



To print a single memory, press the «2» key, enter the memory number and press the «PRINT» key.



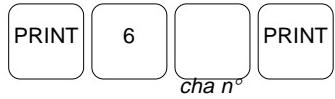
To print a memory series, press the «3» key, enter the number of the first memory, press the double arrow, enter the number of the last memory and then press the «PRINT» key.



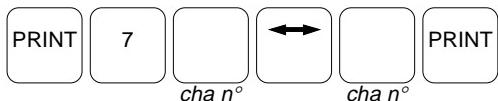
To print the list of the memories, press the «4» key and then press the «PRINT» key.



To print all the chasers, press the «5» key and then press the «PRINT» key.



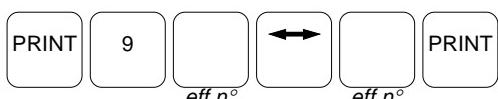
To print a single chaser, press the «6» key, enter the chaser number and press the «PRINT» key.



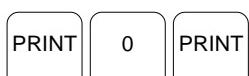
To print a series of chasers, press the «7» key, enter the number of the first chaser, press the double arrow, enter the number of the last chaser and then press the «PRINT» key.



To print all the special effects, press the «8» key and then press the «PRINT» key.



To print a series of effects, press the «9» key, enter the number of the first effect, press the double arrow, enter the number of the last effect and then press the «PRINT» key.



To print the patch, press the «0» key and press the «PRINT» key.



To print the screen contents, press simultaneously the "TEM" and "PRINT" keys.

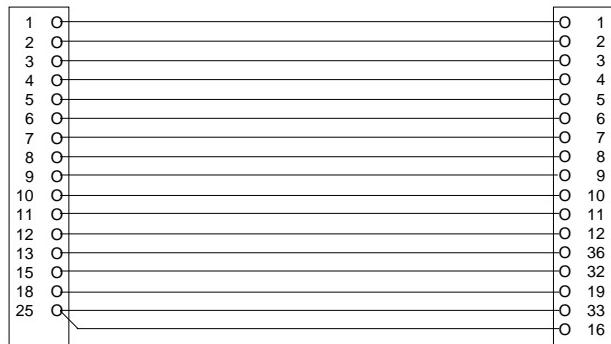
PRINTER SPECIFICATIONS

(ADB code : 1103.05.075)

SPECIFICATIONS			
PRINTING METHOD	Impact dot matrix		
NUMBER OF PINS IN HEAD	9		
PRINT DIRECTION	Bidirectional printing with logic seeking in text mode Unidirectional printing in the bit image and graphic mode (Unidirectional printing can be selected by software)		
PRINT SPEED	240 cps (Draft elite) 200 cps (Draft pica) 40 cps (NLO pica)		
PRINT CHARACTERISTICS			
CHARACTER SET	ASCII characters 13 international character sets Graphic characters IBM Graphic characters (selectable)		
FONT	DRAFT, NLO ROMAN, NLO SANS SERIF		
CHARACTER STRUCTURE	9 x 9 matrix (Draft) 18 x 20 matrix (NLO)		
PRINT SIZES	character size	characters per line	characters per inch
PICA	2.1 x 3.1	80	10
CONDENSED PICA	1.05 x 3.1	137	17
ELITE	2.1 x 3.1	96	12
CONDENSED ELITE	1.05 x 3.1	160	20
TABULATIONS			
HORIZONTAL / VERTICAL			
PAPER HANDLING	WIDTH (80 col)	FEED	
CUT SHEET	182 - 216	friction	
FANFOLD	101 - 254	adjustable tractor	
ROLL	216	friction	
COPIES	3 copies including the original		
PAPER THICKNESS	0.25 or less		
PAPER PATH	Fanfold paper : Rear Cut sheet : Top		
LINE SPACING	1/6", 1/8", or programmable (Min. 1/216")		
INTERFACE			
STANDARD	Centronics-type 8 bit parallel		
OPTIONAL	IEEE-488, RS-232/Current loop APPLE II parallel/intelligent etc.		
INPUT BUFFER	8K bytes		
RIBBON CARTRIDGE			
COLOR	Black		
TYPE	Cartridge type (FX series compatible) 80 column version (# 8750)		
RELIABILITY			
MCBF	5 x 10 ⁶ lines (excepted print head assembly)		
LIFE OF PRINT HEAD	100 x 10 ⁶ characters (14 dots per characters)		
LIFE OF INK RIBBON	3 x 10 ⁶ characters (14 dots per characters)		
BUILT-IN FUNCTIONS			
	(1) Buffer-full printing (2) Hex dump (3) Self-test printing (NLO/Draft) (4) Input data buffering		
MODE SELECT SWITCH			
SELECTTYPE	Select print mode directly NLO/Draft Normal/Condensed		
ENVIRONMENTAL CONDITIONS			
TEMPERATURE (operating)	5°C - 35°C		
HUMIDITY (operating)	10 % - 80 % (no condensation)		
POWER REQUIREMENTS			
VOLTAGE	220 / 240 V AC		
FREQUENCY	49.5 - 60.5 Hz		
POWER CONSUMPTION	120 VA		
DIMENSIONS			
HEIGHT	90 mm		
WIDTH	405 mm		
DEPTH	334 mm		
WEIGHT	Approx. 7.2 kg		

Interconnection Cable

TENOR
connector DB25 - P



PRINTER
connector
AMPHENOL 57.30360

cable LIVY 16 x 0.25 mm² - lenght : 5 m

External Lines

Summary

Foreword	135
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External Line Desk (Option)	137

Foreword

The TENOR can be commanded by external control signals via 10 programmable inputs.

These 10 inputs are called "external lines".

Simply closing a contact between one of these lines and an eleventh contact (the common) permits execution of a key sequence already programmed by the operator, in the same way as a soft-key (macro) or a command memory (see chapter 8).

Any TENOR function may be started by an assistant director or actor anywhere on the stage, by means of an audible tap on the sound track, or by the public via a microphone.

By default, into the TENOR, the external lines are disabled; to enable the desired line or lines, select the MENU 1. 2 and click the corresponding symbol or enter their number via the numeric keyboard.

The "OFF" sign disappears and the "ON" sign appears under the

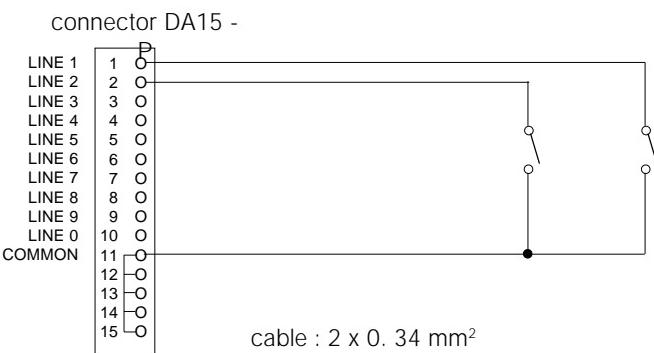
EXTERNAL LINES									
EXT 1	EXT 2	EXT 3	EXT 4	EXT 5	EXT 6	EXT 7	EXT 8	EXT 9	EXT 0
OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
CHANGE STATE					0 - 9	ICON			
ENABLE ALL EXTERNAL LINES					ALL				

symbol of the enabled lines.

To disable again a line, you need only click on its symbol again or enter its number via the numeric keyboard.

To enable all the lines, enter "ALL".

TENOR



Interconnection

The control device is to be of the low-voltage momentary closing type.

The system requires 2 wires per control placed anywhere at a maximum distance of 100 m.

External Line Desk (Option)

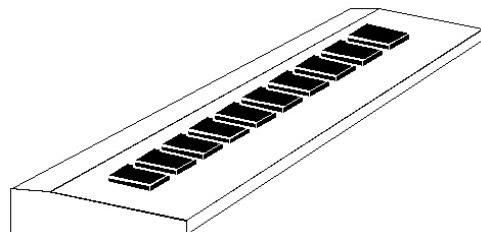
The programming mode of the TENOR makes it possible to allocate a combination of a maximum of 63 different functions (63 steps) to a single key (one and only one of these steps being a key which is already programmed).

For the purpose of increasing the number of programmable keys, a small desk which connects to the external line input is available.

It has 10 buttons numbered from 0 to 9, of the same type as those of the flash submasters of the TENOR desk.

The interconnection will be in conformity with the following diagram.

The unit box includes two fixing holes for wall-mounting.



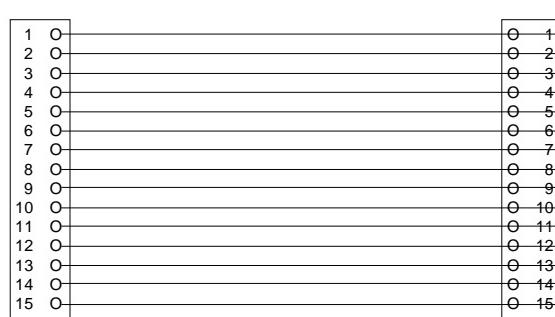
Ref. : PUP / EXT / LIN

ADB code : 1153.34.060

TENOR

connector DA15 -
P

EXTERNAL
LINE DESK
connectorDA15 - S



cable : 16 x 0.34 mm²



Infra-red Remote Control

Summary

foreword 139

System Interconnection

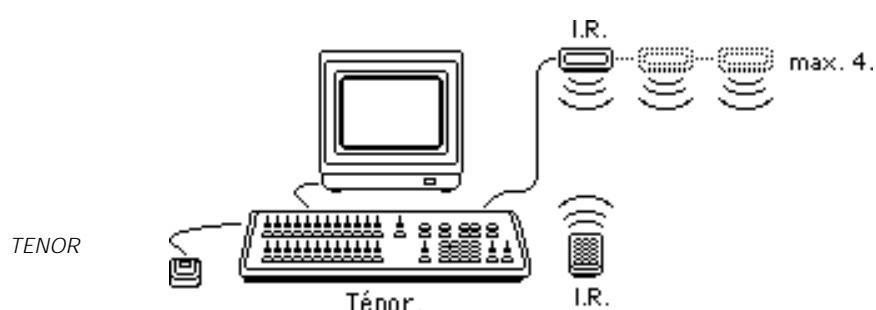
- Cable between TENOR and I.R. receiver 139
- Cable between each I.R. receiver 139

Transmitter Unit 140

Receiver Unit 140

I.R. Mode

- Adjusting the intensities of the channels 141
- Fading the contents of the stage playback 141
- Calling up and loading a memory 141
- Running a softkey 141



Foreword

Certain functions of your TENOR such as :

- adjusting the intensities of the channels
- fading the contents of the stage playback
- calling up and loading a memory

can be remote controlled by means of an infra-red system (in option).

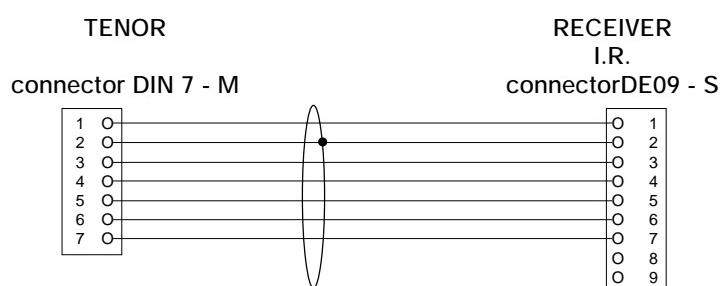
This system consists of a maximum of four I.R. receivers and a transmitter of the hifi/video remote control type.

The range of the transmitter is 30 m maximum; each receiver is coded and can occupy any position in the configuration of the system.

During the installation, you will have to plug one integrated circuit per receiver into your TENOR. These decoder circuits and the installation information are delivered with the factory-coded receivers.

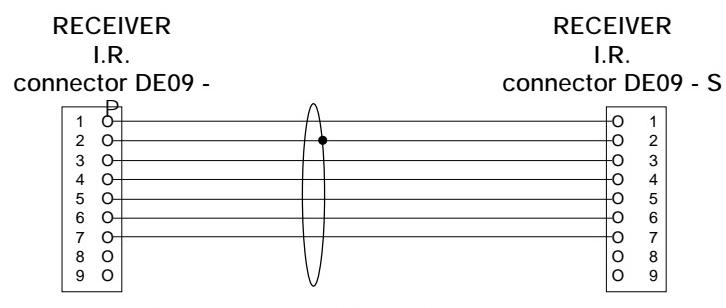
System Interconnection

Cable between TENOR & I.R. Receiver



cable : 7 x 0. 34 mm² - Length : 400 m Max.

Cable between each I.R. Receiver



cable : 7 x 0. 34 mm² - Length : 400 m Max.

Transmitter Unit

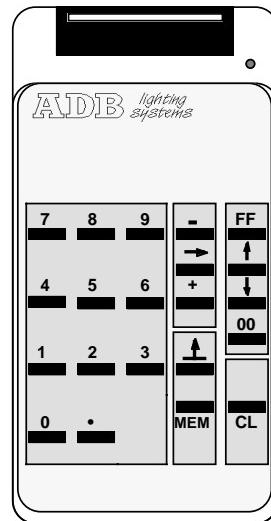
Transmitter unit of the hifi/video remote control type

Ref : EMET / IR
ADB code : 6382.01.100

Supplied by :

- either : 1 9V alkali battery
type 6LF22 (IEC standard)
ADB code : 6172.00.009
- either : 1 rechargeable battery

e.g. : TR7.8 battery (VARTA)
FW4001 charger (FRIWO)



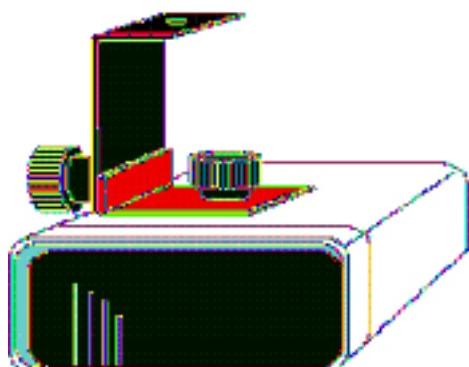
Dimensions : 22 x 145 x 70 mm
Weight : 150 gr

Receiver Unit

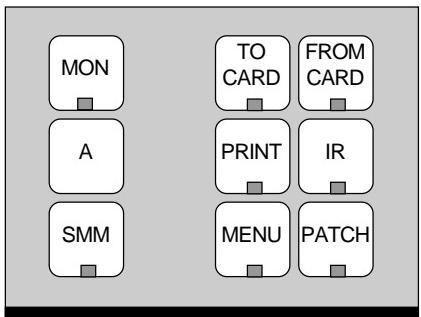
Ref. : RECEPT / IR
ADB code : 6382.01.120

Each receiver is supplied with :

- 1 connector type DE09-P
- 1 connector type DE09-S
- 2 connector caps
- 1 adjustable support
- 1 decoder chip to install into the desk
(positions U35, U48, U53 or U62)
- 1 direction for use



Dimensions : 150 x 155 x 120 mm
Weight : 700 gr



KEYBOARD FOR ACCESS TO THE I.R. MODE

I.R. MODE

The operation of the infrared remote control becomes effective by pressing the IR key on the desk.

From this instant, the monitor displays the crossfade mode which is placed under remote control (IR appears on the screen).

Light may still come simultaneously from the 24 submasters, the 12 flash submasters, the stage playback, etc. and all the memories and effects can continue to function simultaneously.

On the other hand, a series of key is locked to enable correct functioning of the remote control.

Once the IR mode is operative, a red indicator lights up on the receivers. When you give command via the IR transmitter, this indicator goes out for the duration of the transmission so as to inform you that the command has been correctly received by the equipment.

Adjusting the Intensities of a Channel

To select the channels, use a combination of the «0» to «9», «-» and «+», and the arrow (up to) keys, as in the desk.

To allocate intensities at 100 % use the «FF» key, at 0% the «00» key, and to raise the intensities, the upward arrow key and to lower the intensities, the downward arrow key.

To deselect channels, use the «-» key then the channel numbers.
To select more channels, use the «+» key then the channel numbers.

To deselect all the channels, press the «CL» key twice.

Fading the contents of the stage playback

No channel should be selected , whereupon by acting on the up and down keys, the existent state in the memory is proportionally modified.

Calling up and loading a memory

Firstly press the «MEM» key, give the memory number and load the memory by pressing the **L** key .

The existent state in the stage playback will be replaced by that of the memory called up.

Running a softkey

It is also possible to run a softkey means the I.R. system.
You need only programm a desk key corresponding to a key of the I.R. transmitter.

e.g. : by programming the "+" with the "STA" function, you can control the crossfade from the I.R. system.



MIDI

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Programming MIDI from the TENOR

- Selection of the type of protocol 152
- Verification of the MIDI connection 153
- Programming the «NOTE ON» messages 154
- Programming the «PROGRAM CHANGES» messages 157
- Programming the «CONTROL CHANGES» messages 159
- Triggering an effect based on a MIDI signal 161
- Sending MIDI messages 162
- Synchronization of two TENOR's 163
- Examples of application 165

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- TENOR A + TENOR B 171
- The TENOR is master 172
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MIDI Implementation Chart 175

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Introduction

MIDI is a magic word which means «MUSICAL INSTRUMENT DIGITAL INTERFACE». The MIDI made its appearance in the musical world around the beginning of the 80s, and has been used in the world of lighting for some time now.

Many people talk about it. MIDI has become a must for any new lighting console, but very few people really know what it can be used for.

The aim of this chapter is to clarify certain points which may perhaps be a bit foggy, and to show you the possibilities offered by TENOR with the aid of this interface.

What is MIDI used for ?

As stated above, MIDI was originally created to serve as an interface between different musical instruments. The purpose was to enable these instruments to exchange informations («notes», among other things) according to a standardized protocol. Thus, it was made possible to connect a brand X synthesizer with a brand Y rhythm box.

With time, other devices appeared, such as sequencers (which permit you to record MIDI information and restitute it on request), and «home computers», which open the door to more elaborate processing.

In lighting, the point which is of interest to us is obviously the possibility of exchanging information between different devices.

Why MIDI ?

The great advantage of MIDI over other protocols is, first, that it is readily available and has many users, and above all, that it is simple to implement.

We must first, however, make a few remarks:

32 kbit / sec

1. The speed of MIDI signal transmission is 32 kbits/sec. This is fast in comparison to an RS 232 connection on a PC (max. 9.6 kbits/sec.) but, at the same time, slow in comparison to a DMX512 (250 kbits/sec.). In effect, the MIDI is perfectly suited for sending, in real time, a series of brief orders (for example, twenty notes per second), but would not be suitable at all for continuous transmission of a set of data (the DMX512 allows you to send 512 different values up to 40 times per second).

In lighting, it is therefore easily possible, on a MIDI line, to send a message such as «load and start memory 1» or «flash submaster 2», but it would not be possible, in real time, to control fifty motorized projectors!

15 m

2. The connection cables for a MIDI line are a maximum of 15 m. long. Nevertheless, if longer distances are necessary, ADB can furnish you with amplification boxes permitting you to send a MIDI signal up to 1000 m. This is not, therefore, a real limitation.

Some Technical Terms

Before going any further, it is necessary to define some technical terms:

BIT : unit of binary measurement which may take the values of 0 or 1.

BYTE : succession of 8 bits. A byte can have a value from 0 to 255 (decimal).

MIDI MESSAGE : A MIDI message is made up of a succession of bytes. The first byte gives, in general, the nature of the message as well as the MIDI channel.

MIDI CHANNEL : Additional code (varying from 0 to 15) characterizing a MIDI message (the information is generally present in the first byte of a MIDI message). This code allows several peripherals connected on the same MIDI line to select the messages sent to them. For example, they may reject all the messages not beginning with the information «Channel 5». The notion of channel is therefore purely one of software.

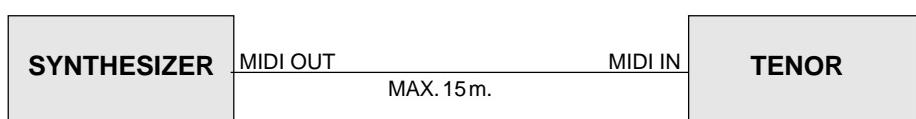
Interconnection

The TENOR & MIDI

Like all MIDI peripherals, the TENOR possesses 3 DIN 5 connectors:

- MIDI IN: permits you to receive a MIDI signal sent by another device.
- MIDI THRU: this is the reamplification of the MIDI IN signal permitting you to link it to several devices.
- MIDI OUT : permits you to transmit any MIDI signal.

1°



2°

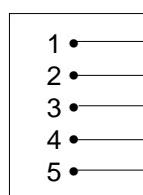


3°

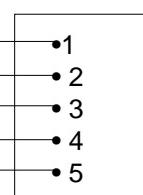


MIDI Connection

DIN 5 P



DIN 5 P



Cable : 5 x 0,34 mm²

TENOR

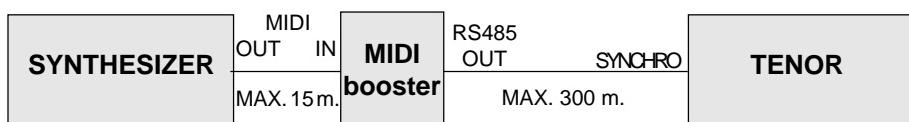
SYNCHRO (or RS485) connection

In contrast to most other MIDI peripherals, the TENOR can also transmit MIDI codes on an RS485 line.

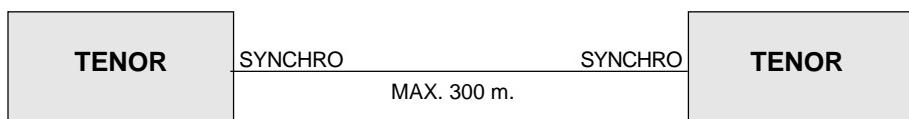
This permits making connections up to 1000 m. away.

Wiring examples:

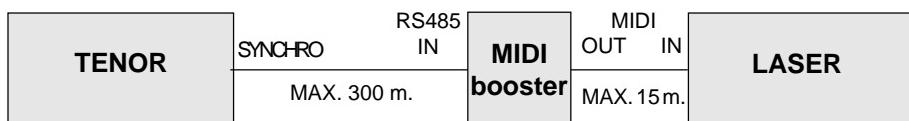
1°



2°

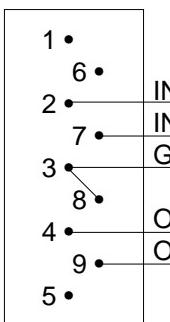


3°

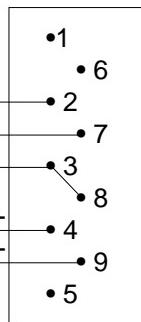


SYNCHRO (ou RS485) connection

DE09 - P



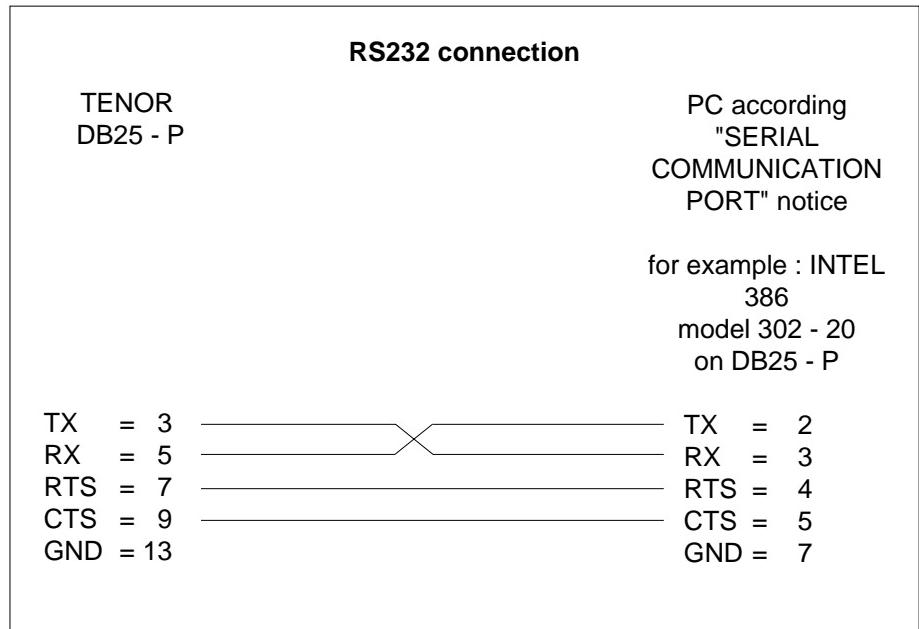
DE09 - P



Cable : 5 x 0,34 mm²

Connection RS232

In order to connect the TENOR directly to a PC, the MIDI messages may also be exchanged over the RS232 line.



In the following pages, we will review the TENOR MIDI possibilities by analyzing successively:

- the MIDI codes received by the TENOR
- the use of these codes by the TENOR (or the MIDI or TENOR programming)
- some concrete examples of connections

MIDI CODES

recognized by the TENOR (on the MIDI IN line) :

"NOTE ON" (I00Innnn + 1 ou 2 data bytes)

The «NOTE ON» code is the most often used in MIDI. It is the transmission code sent by synthesizers every time a note is played.

- the first byte gives the code and the MIDI channel («nnnn»)
- the second byte gives the value of the note (128 possibilities)
- the third byte gives the speed of attack of the note (velocity).

"NOTE OFF" (I000nnnn + 1 ou 2 data bytes)

The «NOTE OFF» code is the complement of the preceding. It is transmitted each time a note is released.

- the first byte gives the code and the MIDI channel («nnnn»)
- the second byte gives the value of the note (128 possibilities)
- the third byte gives the velocity of release of the note.

"ALL NOTES OFF" (I0IInnnn + 0IIIOII + 00000000)

The «ALL NOTES OFF» code means that all the notes are released. It is generally transmitted when the synthesizer is turned on.

- the first byte gives the MIDI code and channel («nnnn»)
- the other bytes are fixed.

"PROGRAM CHANGE" (I100 nnnn + 1 data byte)

The purpose of this message is to change, long distance, from a master keyboard, the sonority pre-selections on all the devices connected on the same MIDI channel number.

- the first byte gives the MIDI code and channel (nnnn)
- the second byte gives the number of program (128 possibilities).

"CONTROL CHANGE" (I0I1 nnnn + 2 data bytes)

This message permits modification of certain regulations from a distance. Contrary to the other messages which transmit exact actions (sending a note, selecting a program), this permits sending continual regulation values (potentiometers, pedals, thumbwheels, etc.).

- the first byte gives the code and the MIDI channel (nnnn)
- the second byte gives the code number of the regulation (128 possibilities)
- the third byte gives the absolute value of this regulation.

"MIDI CLOCK" (IIII0000)

This message is used as a time reference by the rhythm boxes and the MIDI sequencers. It permits these machines to function in perfect synchronization.

Note

On the MIDIOUT line, the TENOR is capable of sending any MIDI code

"ACTIVE SENSING" (IIIII00)

This message permits all instruments to control their MIDI connections.

"SYSTEM EXCLUSIVE" (IIII0000 + 1 data byte + info exel.)

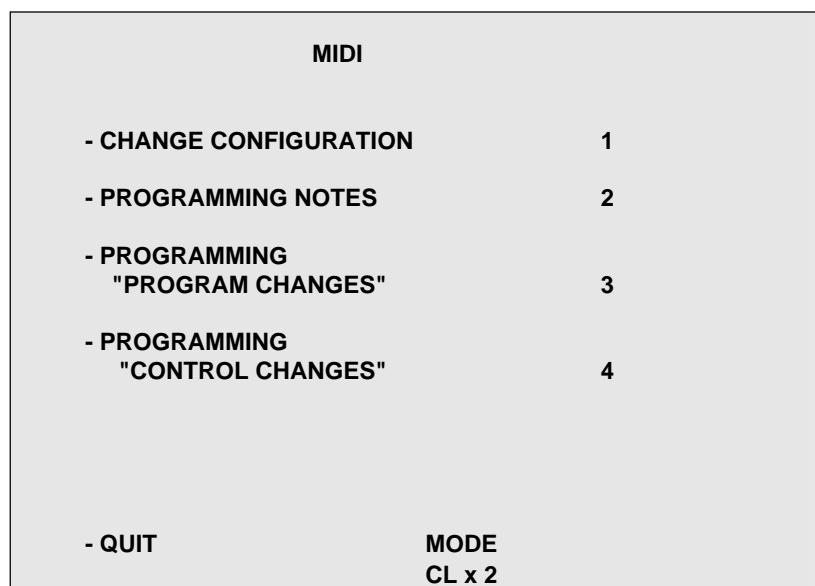
This message permits sending «private» information not recognized by the MIDI peripherals of other brands.

«EOX» (IIIIOIII) terminates a «SYSTEM EXCLUSIVE» message.

Programming MIDI from the TENOR

In a general way, to change the MIDI programming of the TENOR, it is necessary to enter the MIDI sub-menu.

To do that, push,



In the following pages, we are going to see how to:

- select the protocol used
- check the MIDI connection
- programme «NOTE ON» messages
- programme «PROGRAM CHANGES» messages
- programme «CONTROL CHANGES» messages
- trigger an effect based on a MIDI signal
- send MIDI messages
- synchronize two TENORS.

Then, we will see some examples of concrete applications.

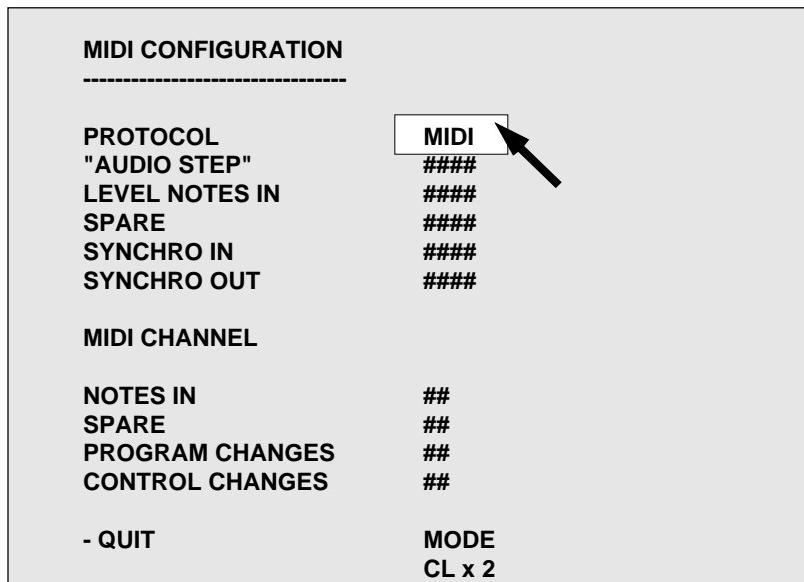
Selection of the type of protocol

As we have seen, the TENOR can send MIDI messages in 3 different electrical protocols, such as:

	MIDI	RS485	RS232
software protocol	MIDI	MIDI	MIDI
hardware protocol	current loop	RS485	RS232
speed of transmission	32 kbits/sec.	32 kbits/sec.	1,2 kbits/sec.
max.distance	15 m	1000 m.	15 m.
connectors	3 x DIN 5	DE09 fem.	DB25 fem

To select the type of protocol

- select the «MIDI CONFIGURATION» sub-menu



Select the box located at the right of the «PROTOCOL» indication and using the up and down keys on the console,



you can choose between:

- OFF (line disconnected)
- MIDI
- RS485
- RS232

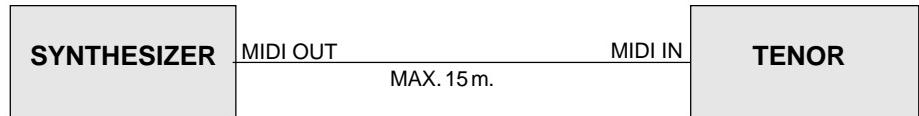
- Then turn the TENOR off and back on again to make the protocol change effective.

Notes:

- When you start up for the first time (COLD START), the «MIDI» protocol is selected.
- The information is stored on the card (as long as the MIDI data have been selected).

Examples of Application

1



The simplest method of procedure is to:

- select the same MIDI channel on the TENOR and the synthesizer
- programme some «NOTE ON»s on the TENOR (the flashes of the 24 submasters, for example).

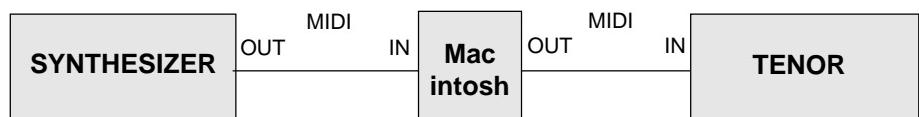
In this case, we will have a luminous effect which «follows» the music.

But we realize that we are limited by this configuration. If you are using a more or less complete synthesizer (that is, capable of sending «PROGRAM CHANGES» and including some regulating thumbwheels or potentiometers transmitting «CONTROL CHANGES»), you will also be able to control the lighting independently of the music.

To do this, just:

- select identical channels on the synthesizer and the TENOR for the «PROGRAM CHANGES» and the «CONTROL CHANGES» (which can be different from the channel used by the notes, in order not to interfere with possible other peripherals).
- change the luminous state on the scene, start or stop a chaser from the synthesizer, selecting a new program.
- control, from an unused potentiometer, the global intensity of the console, the intensity of a submaster, or control the progress of a crossfade.

2



To realize more elaborate effects, such as starting an effect on a chord or a succession of notes, it is necessary to insert LOGIC between the synthesizer and the TENOR. That is the aim of this configuration.

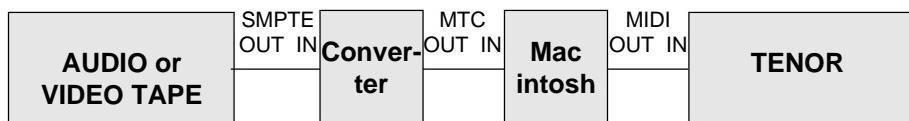
Note:

It is obvious that the Macintosh can be replaced by any computer offering MIDI input and output plus a processing program. Please contact ADB for any additional information on this subject.

In both these applications, the synthesizer can be replaced by any other peripheral capable of sending MIDI codes: MIDI drums, MIDI guitar, rhythm box.

TENOR

3



The purpose of this configuration is to put on an entirely automatic sound and light show.

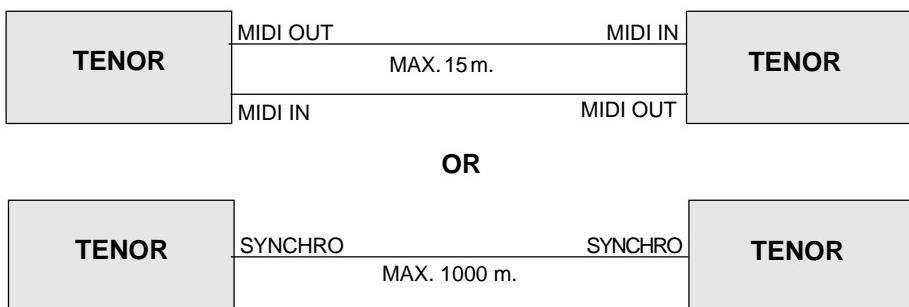
We must first of all define a few terms:

- SMPTE («Society of Motion Picture and Television Engineers») is a standardized time coding (in hours, minutes, seconds, and fractions of seconds).
This is the universal clock used in video and cinema, but also on audio. If this code is inscribed on a video tape, for example, a precise time is associated to each image.
- MTC («MIDI TIME CODE») is the equivalent of the SMPTE code in MIDI.

The principle is therefore very simple. An audio tape (or any other support: video tape, compact disc video, SMPTE generator, etc.) contains an SMPTE code.

This code is transformed into MTC and sent to a MacIntosh. The latter, at precise moments (given by the SMPTE clock) sends orders to the TENOR (for example, «PROGRAM CHANGES»), and thus triggers the loading of a memory or the starting of an effect. These effects are therefore always perfectly synchronized with the audio tape, and therefore with the sound.

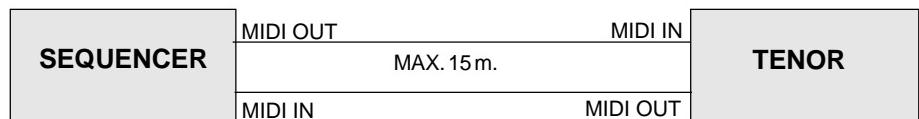
4



Synchronization of two TENORS:

On this subject, please see the chapter «CONFIGURATION OF A SYSTEM INCLUDING TWO TENORS».

5



The aim of this configuration is to obtain an automatic re-play of a show which has already been recorded in manual.

In effect, a sequencer can be assimilated to a simple recorder capable of storing and restituting upon demand a set of MIDI codes. There are sequencers in the form of small autonomous boxes, but you can also use a computer with a specific program.

It is therefore enough just to:

- put the sequencer in record mode:
- manipulate the TENOR.

Then, you can put the sequencer in restitution mode and «re-play» the codes stored in this manner.

6



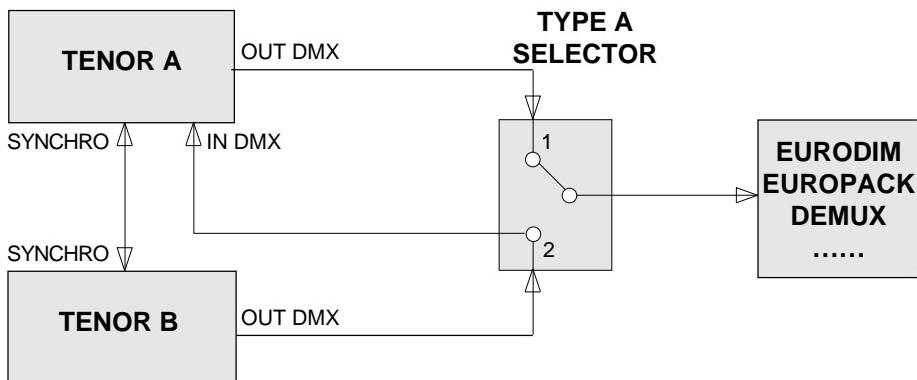
You can also, from TENOR, pilot any device which can be commanded by a MIDI signal, either through the TENOR keyboard, or automatically in sequence.

Note:

Of course, ADB remains at your disposal for any information concerning the programs to be used and the type of configuration to be designed.

TENOR

Configuration of a System including two TENORS



In normal functioning, the selector is in position 1.

In case of default by TENOR A, position the selector on «2» and TENOR B will take over piloting the dimmers.

INITIALIZING THE SYSTEM

(Selector A in position 1)

- select the «CHANGE CONFIGURATION» sub-menu.



MIDI CONFIGURATION

PROTOCOL	RS485
"AUDIO STEP"	####
LEVEL NOTES IN	####
SPARE	####
SYNCHRO IN	####
SYNCHRO OUT	####
MIDI CHANNEL	
NOTES IN	##
SPARE	##
PROGRAM CHANGES	##
CONTROL CHANGES	##
- QUIT	
MODE	
CL x 2	

- if you have selected the connection of your TENORS via the SYNCHRO line (the most usual case), you must change the communication protocol. To do this, select the box located at the right of the «PROTOCOL» indication, and using the up and down keys on the console,



you can select RS485.

Then you need no longer touch this configuration.

NOTE: The mode change (from RS485 to MIDI & reverse for example) is only taken into consideration after that the console has been swiched off and restarted.

- then select the «CONFIGURATION OF A SYSTEM INCLUDING TWO TENORS» sub-menu.



CONFIGURATION OF A DOUBLE - TENOR SYSTEM

TENOR A + TENOR B	
- TO CHANGE	
↑ OR ↓	

- Select the central box and using the up and down keys on the console,



you can select:

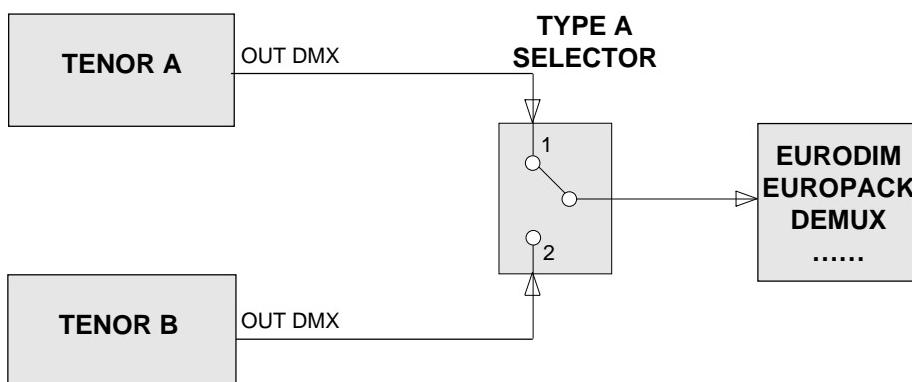
- 2 INDEPENDENT TENORS
- TENOR A + TENOR B
- THIS TENOR IS MASTER
- THIS TENOR IS SLAVE.

TENOR

2 independent TENORS

This is the state in which the machines are found upon the complete initialization of the systems.
No connection is active.

	IN DMX512	IN SYNCHRO	OUT SYNCHRO
TENOR A	OFF	OFF	OFF
TENOR A	OFF	OFF	OFF

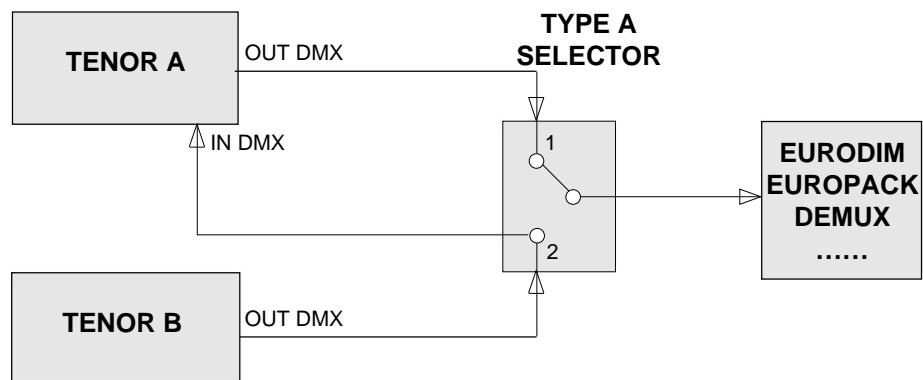


If the selector A is in position 1, only TENOR A sends information.
TENOR B is not influenced by the TENOR A.

TENOR A + TENOR B

This configuration will be used above all during the preparation of a show.

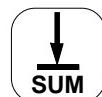
	IN DMX512	IN SYNCHRO	OUT SYNCHRO
TENOR A	ON	OFF	OFF
TENOR A	ON	OFF	OFF



The outputs of TENOR B are re-injected into TENOR A according to the rule of the «highest takes precedence».

This system therefore acts as if you had a machine with two crossfades and 48 submasters.

These intensities can be re-recorded in memory on the TENOR A thanks to the function:



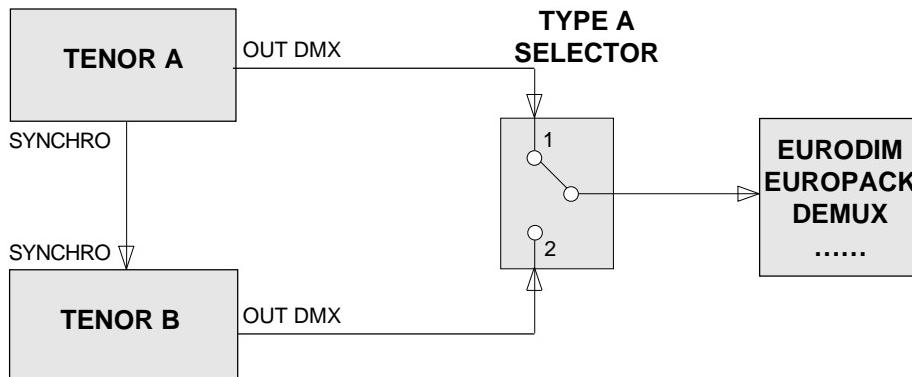
Important notes :

- 1 As long as the SYNCHRO connection is wired and the communication protocol of both machines is initialized correctly, the fact of setting one of the two machines in the «TENOR A + TENOR B», forces the other to be set also in the same state.
This can be useful if the two machines are some distance away from each other.
- 2 In this configuration, patch of TENOR B must be 1/1 and all dimmer laws of TENOR B must be 0.

The TENOR is MASTER

This configuration will normally be used upon the restitution of a show.

	IN DMX512	IN SYNCHRO	OUT SYNCHRO
TENOR A TENOR A	OFF OFF	OFF ON	ON OFF



Before passing into this configuration, the two TENORS must be in the same state.

To be sure of this, you can, for example:

- re-initialize both machines (push the «ALL» and «RET» keys simultaneously, turn the machines off and back on).
- load the memory card in both machines
- check that the communication protocol is RS485 on both machines.

Then, all operations executed on TENOR A (keys, potentiometers, and mouse) will be automatically executed on TENOR B. The two machines will therefore evolve in perfect synchronization.

In case of default by TENOR A, position the selector on «2», and TENOR B will take control of the dimmers at the precise spot where the TENOR A has defaulted.

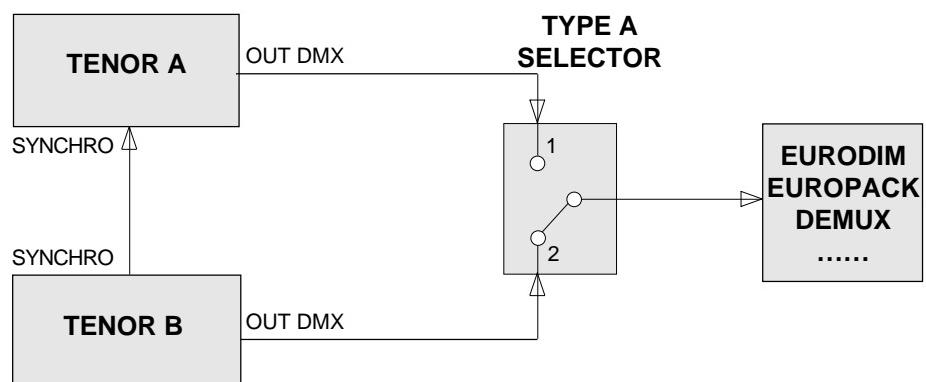
Important notes :

- 1 As long as the SYNCHRO connection is wired and the communication protocol of both machines is initialized correctly, the fact of setting one TENOR in the «MASTER» position forces the other to be set in the «SLAVE» position.
Inversely, the fact of setting one TENOR in the «SLAVE» position, forces the other to be set in the «MASTER» position.
This can be useful if the two machines are some distance away from each other.
- 2 In this configuration, patch and dimmer laws must be identical for both machines.

The TENOR is SLAVE

This is simply the complementary state to the preceding case.

	IN DMX512	IN SYNCHRO	OUT SYNCHRO
TENOR A	OFF	ON	OFF
TENOR A	OFF	OFF	ON



Before passing into this configuration, both TENORS must be in the same state.

To be sure of this, you can, for example:

- re-initialize both machines (push the «ALL» and «RET» keys simultaneously and turn the machines off and back on)
- load the memory card in both machines
- check that the communication protocol is RS485 on both machines.

Then, all operations executed on TENOR B (keys, potentiometers and mouse), will be automatically executed on TENOR A. The two machines will therefore evolve in perfect synchronization.

In case of default by TENOR B, position the selector on «1» and TENOR A will take control of the dimmers at the precise spot where the TENOR B has defaulted.

TENOR

MIDI-SIGNALS
RECOGNIZED BY THE
TENOR

1001nnnn	0kkkkkkk	0vvvvvvv	note on
1000nnnn	0kkkkkkk	0vvvvvvv	note off
1100nnnn	0ppppppp		program change
1011nnnn	0ccccccc	0vvvvvvv	control change
1011nnnn	01111011	00000000	all notes off
11111000			system real time
11111110			active sensing
11110000			exclusive message

SYSTEM EXCLUSIVE
MESSAGE

BYTE 0 F0		system exclusive message
1 00		the 2 next bytes are ADB's identity
2 20		ADB's identity (MSB)
3 15		ADB's identity (LSB)
4 NN	0nnnnnnn	message nummer
5		
•		
•		
• F7		eox (end of exclusive message)

NN = 00
message mouse
position

BYTE 5	0xxxxxxx	position x (7 first bits)
6	0yyyyyyy	position y (7 first bits)
7	000000yx	bits 7 of x and y
8	11110111	eox

NN = 01
message
key ON

BYTE 5	0ttttttt	key code (7 bits)
6	0000000t	bit 7
7	11110111	eox

NN = 2
message : potentiometer

BYTE 5	0i0ppppp	pot n° (0 - 27), i = LSB pot. value (bit 0)
6	0iiiiiii	pot. value (bit 7 - 1)
7	11110111	eox

NN = 3
message
flash key

BYTE 5	0fffffff	flash n° (0 - 11)
6	000000s	s = 0 : OFF ; s = 1 : ON
7	11110111	eox

NN = 4
audio message

BYTE 5	0bbbbbbb	bass intensity
6	0mmmmmmm	medium intensity
7	0ttttttt	treble intensity
8	000000s	S = 0 : anything , s = 1 : advance one step
9	11110111	eox

NN = 5
message :
system configuration
including 2 TENOR's

BYTE 5	000000ww	ww 00 independent TENORS
		ww 01 TENOR A + TENOR B
		ww 10 master
		ww 11 slave
6	11110111	eox

MIDI IMPLEMENTATION CHART

ADB
(LIGHTING CONTROL DESK)TENOR
Version 3.5 26th Sept 1991

	Function	Transmitted	Recognised	Remarks
Basic Channel	Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	separate channel for Notes, Prog. Changes, Control
Mode	Default Messages	Mode 3 X	Mode 3 X	
Note Number	True Voice	0 - 127 -	0 - 126 -	each note programmable
Velocity	Note ON Note OFF	0 - 127 0 - 127	0 - 127 X	used only for flashes
After Touch	Key's Ch's	0 0	X X	
Pitch Bender		0	X	
Control Change		0 - 127	0 - 127	each Control Change programmable
Prog Change	True #	0 - 127 -	0 - 126 0 - 126	each Prog. Change programmable
System Exclusive		0	0	see TENOR manual
System Common	: Song Pos : Song Sel : Tune	0 0 0	X X X	
System Real Time	: Clock : Commands	0 0	0 X	May control a running effect
Aux Messages	: Local ON/OFF : All Notes OFF : Active Sense : Reset	0 0 0 0	X 0 0 X	sended ± 2 x /sec.
Notes		<ul style="list-style-type: none"> - MIDI informations may also be transmitted and received on <ul style="list-style-type: none"> - RS485 port (SYNCHRO) - RS232 port - All other MIDI messages are accepted, but rejected by the TENOR 		

TENOR

Table of MIDI Level (Notes)

	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Oct -2	0	1	2	3	4	5	6	7	8	9	10	11
Oct -1	12	13	14	15	16	17	18	19	20	21	22	23
Oct 0	24	25	26	27	28	29	30	31	32	33	34	35
Oct 1	36	37	38	39	40	41	42	43	44	45	46	47
Oct 2	48	49	50	51	52	53	54	55	56	57	58	59
Oct 3	60	61	62	63	64	65	66	67	68	69	70	71
Oct 4	72	73	74	75	76	77	78	79	80	81	82	83
Oct 5	84	85	86	87	88	89	90	91	92	93	94	95
Oct 6	96	97	98	99	100	101	102	103	104	105	106	107
Oct 7	108	109	110	111	112	113	114	115	116	117	118	119
Oct 8	120	121	122	123	124	125	126	127				

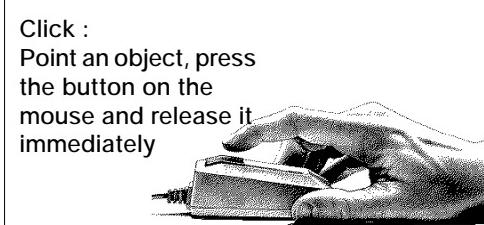
Glossary, Messages & tests

Summary

Glossary	179
Messages	180
Test	184

Glossary

	keyboard
	symbol on screen
	successive manipulations
	simultaneous manipulations
	one or other manipulation
	repeat the same operation
	to move cursor
	up down
	from - to
	previous
	next
	record
	load
	see flash section
	see flash section
	position I memory loading possible modification not possible position I+M possible load and modification of the memories access to the black out



Messages

3 submasters assigned:

You have already set 3 submasters in sum correction mode, it is impossible to set any other.

5 x ALL select all memories:

Pressing the «ALL» key five times selects all the memories.

18 channels inhibited:

You already inhibited 18 channels.

You can not inhibit one more.

Blind recording:

In the submaster, the lever of the potentiometer is not at 100 %.

Card error or card missing:

The memory card is missing or an error has been encountered whilst in continuous record mode.

Card is full:

You can not store all the information on the card.

Take a card with a higher capacity.

Colour memory:

The memory which you are calling up is a colour memory.

Control memory:

The memory which you are calling up is a command memory.

Confirm memory selected:

Confirm your last operation before continuing.

First step:

You are at the first step of a chaser or of a special effect.

Impossible for an effect:

This key or this function is not allowed if the submaster contains an effect or a chaser.

Impossible for several sub.:

Function impossible with several submasters.

Impossible in inhibit mode:

Function not allowed in inhibition mode.

Impossible in solo mode:

Use of this key is not allowed in solo mode.

Key disabled:

This key has no function, you can however program it.

Last memory reached:

You have reached at the last memory.

Last step:

You have reached at the last step of a chaser or a special effect

Max. one wait time running:

A programmation with a wait time is already running.

The keys following the second wait time are ignored.

Medium position:

Whilst in sum correction mode, you are hooking up the submaster.

Memory does not exist:

The memory which you are calling up does not exist, select another memory number.

Memory full:

You can create a maximum of 254 memories.

Memory not empty:

The memory into which you wish to record is already occupied, confirm the recording if you wish to replace its content or select another memory number. You can view the already used memory numbers by clicking the «USE MEM» symbol.

Memory protected:

The memory into which you wish to record is protected and cannot be used, turn the key to suppress protection.

Only possible in auto mode:

Fade chaining is possible only in automatic sequence.

Programmed key:

In programming mode, this message indicates that the key selected is already programmed, continue if you wish to modify its content, if not, leave the mode.

Replace card Battery!!!:

This information may appear at the instant that you start your desk, change immediately the lithium battery inside the desk.

Select a chaser:

You must select a chaser to continue.

Select a memory:

You must select a memory to continue.

Select a special effect:

You must select an effect to continue.

Submaster assigned:

You have already set this submaster in sum correction mode, select another submaster.

Syntax error in "wait" fct:

A syntax error in the programmation of a wait time.

This is not a colour memory:

The number which you have just entered does not correspond to a colour memory.

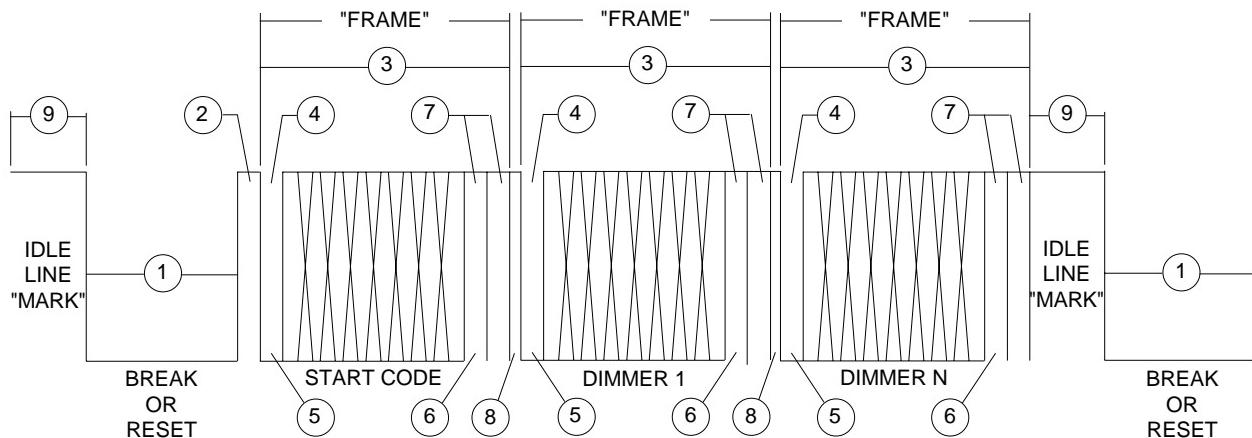
This number is too high:

This number is too high, enter another number.

Unprogrammed key:

In programming mode, this message indicates that the key selected is not yet programmed.

GENERAL SPECIFICATION OF DMX512 / 1990 SIGNAL



DESIG	DESCRIPTION	MIN	TYP	MAX	TENOR CHANNEL	TENOR COLOUR	UNIT
1	"SPACE" FOR BREAK	88	88		250 - 1200	300 - 1700	μsec.
2	"MARK BETWEEN BREAK & START CODE	8.00	-	1.00	8 - 16	8 - 16	μsec. sec.
3	FRAME TIME	43.12	44.0	44.48	44	44	μsec.
4	START BIT	3.92	4.0	4.08	4	4	μsec.
5	LEAST SIGNIFICANT DATA BIT	3.92	4.0	4.08	4	4	μsec.
6	MDST SIGNIFICANT DATA BIT	3.92	4.0	4.08	4	4	μsec.
7	STOP BIT	3.92	4.0	4.08	4	4	μsec.
8	"MARK" TIME BETWEEN FRAMES	0	0	1.00	0	0	sec.
9	"MARK" TIME BETWEEN PACKETS	0	-	1.00	44-90 μsec.	530-600 msec.	sec.

TENOR : other informations

TENOR channel

- always 512 channels sent / about 43 messages / sec.

TENOR colour

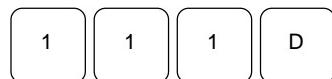
- always 99 channels sent / about 2 messages / sec.

CONNECTOR PIN-OUT			
CONNECTOR	OUTPUT CHANNELS	OUTPUT COLOURS	INPUT CHANNELS
pin 1	XLR 5 0 V	XLR 5 0 V	XLR 5 0 V
2	-	-	-
3	+	+	+
4	LED t°	N.C.	N.C.
5	N.C.	N.C.	N.C.

Test

In case of problems, you can enter in a test program as follows ("D" key not programmed):

Attention, some tests can remove all your memories.



Please refer to the TECHNICAL MANUAL for more details.

To quit the "Test" mode, turn the desk off and on.

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